

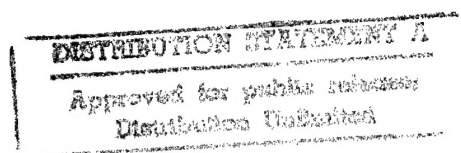
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# East Europe Report

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11 April 1986

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ECONOMY

GERMAN DEMOCRATIC REPUBLIC

DIW PROVIDES FAVORABLE ASSESSMENT OF 1981-85 5-YEAR PLAN

West Berlin DIW WOCHENBERICHT in German Vol 53 No 5 30 Jan 86 pp 57-68

[Unattributed article: "The GDR Economy at the Close of the 1981-85 5-Year Plan"]

[Text] In 1985, a very difficult 5-year plan cycle was brought to a close in the GDR. The sudden drying up of Western credits in 1981/82 called for an extremely rapid reduction in the Western debt burden. Shortage of funds in addition to adjustment and reorganization problems had a powerful impact on the initial stages of the plan cycle. In spite of these problems, average overall growth between 1981 and 1985 reached 4.5 percent (as compared to the 5-year plan goal of 5.1 percent).

Trends in 1985

The 1985 economic plan and the Central Bureau of Statistics announcement on its implementation contain the following noteworthy figures for 1985, i.e. percentage growth as against the previous year.

	Plan	Actual
GNP	4.4	4.8
Industrial Goods Output		
Economy as a Whole	3.8	4.4
Industry Ministries Only	4.3	4.5
Net Output (Industry Ministries Only)	8.0	9.0
Retail Sales	4.0	4.2
Foreign Trade Sales	8.0	3.5

In part, this GNP growth rate in excess of planning goals is attributable to a roughly three percent rise in agricultural output as against a one percent reduction foreseen in the plan.

In the industrial sector, the 4.4 percent growth in the production of industrial goods is about the same as in preceding years. The report singles out the very sizable (11.8 percent) gain in electrical engineering and electronics and the 5.8 percent gain in machine building. Production figures for the other segments of industry are contained in the ECE monthly reports<sup>2</sup> which are available for January through September. These reports show that the other sectors--including the important chemical industry among others--came up with only slight growth rates.

The plan fulfillment report, for its part, focuses on trends in net output, i.e. of +9 percent in the industrial ministries sector and of +12.7 percent in the district economic council sector. The difference in the growth rates between gross and net output (where net output equals gross output less material use and deductions) reflects the savings in materials which account for 62 percent of gross output. The statistics for the industry ministries sector (in percent) are as follows:

	Percentage	Increase
Production of Goods	100	104.5
less Net Output	38	109.0
equals Output Consumption	62	101.7

Based on these figures, specific output consumption in the industry ministries sector has thus declined by 2.7 percent--although it is conceivable that the net output figures reported by the factories were not unaffected by price trends. Extra earnings may have an impact on gross output but tend to have even more of an impact on net output which is made up of wages and earnings exclusively.

As of the first half of 1985, industrial production was relegated to the No. 2 position in the plan fulfillment report. The top position now is occupied by "science and technology" because the GDR economic leadership expects the decisive impulses for further economic growth to come from this sector.

Back in 1979/80, when the combines were established, closer organizational ties between research and production were instituted so as to cut down on slippage in the transformation of technical know-how into production processes and to accelerate technical progress with the help of more practice-oriented research programs.<sup>3</sup> New rules for research planning were introduced, including precise estimates on costs and projected earnings of the programs to be undertaken. Since the middle of 1985 (i.e. the 10th meeting of the

SED Central Committee), discussion has focused on the relationship between university and academy research programs and industry. In the future, the combines are to exert more of an influence on basic research programs undertaken by the universities and the academies of science (AdW) and, for the most part, to fund these programs as well.<sup>4</sup> According to the plan fulfillment report, almost half the university and academy researchers are to work together with the combines in the future on the basis of economic agreements.

Substantial gains were made in 1985 in housing construction. Some 121,000 new apartments were built and another 91,000 were modernized. The ratio of modernized apartments to total apartments available, in other words, continued to grow, having now reached 43 percent. This restructuring process is designed to lower costs and to provide the inner city areas with modern housing. In agriculture, gains were recorded once again both in farming and livestock production. In transportation, more goods traffic was transferred from trucks to rail. 295 more kilometers of rail line were electrified.

The plan fulfillment report lists investments amounting to 62 billion marks "at actual price levels." In terms of constant prices, these investments would seem to have risen by about two percent. This is only a slight rise in view of the numerous investment needs--but a rise nevertheless, following a decline of several years.

Net cash earnings of the population rose by just under 4 percent with part of the increase accounted for by retirement annuities. The minimum annuity was increased by 30 marks as of 1 December 1984. Depending on the number of years contributions to the retirement fund were made, annuities now total 300 to 370 marks per month as against 270 to 340 marks prior to this increase. On 1 December 1985, the base pay used for computation of annuities was increased which means that annuity payments in excess of the minimum scale are now 30 marks higher. The report states that these two adjustments will cost the government 1.2 billion marks annually. The initial segment in 1985 is expected to cost between 800 and 900 million marks.

Retail sales volume increased by 4.2 percent (industrial goods by 5.6 percent; food and luxury items by 2.7 percent). In part, the gain is attributable to higher prices. But it is clear to see that the very major problems in domestic supply of the early eighties have since been overcome.

Foreign trade volume in 1985 rose by 3.5 percent; earnings from exports are given as amounting to 7 billion marks (at the official exchange rate). This adds up to a more or less identical rise in imports and exports. The figures quoted for the GDR's trading partners indicate that the export surplus for trade within the socialist economic community exceeded that of trade with non-socialist nations--which is a departure from the 1984 trade

statistics. According to the GDR's trading partners' statistics, the GDR's trade surplus vis-a-vis the OECD countries rose yet once more as a result of a reduction in imports and a slight rise in exports. In contrast to the GDR's large export surplus in the preceding year, inner-German trade was balanced this year. As a result, the GDR's estimated export surplus vis-a-vis the Western industrialized nations amounts to some 2 billion (foreign exchange rate) marks--as against 3 billion in 1984. The GDR's net indebtedness to Western banks has thus continued to decline. As of the end of 1985, it was estimated at some \$6 billion.

#### Primary Achievements of the 1981-85 5-Year Plan

The 1985 plan fulfillment report states that the 1981-85 5-year plan has been satisfactorily completed--but it contains neither a summary of the 5 years, nor any correlation to the actual planning process.

If one tries to draw up a balance sheet, one must admit that the GDR was faced with extraordinary problems during the past 5 years. In the late seventies, the GDR was confronted both with a dramatic rise in its Western indebtedness and sizable trade deficits vis-a-vis the Soviet Union. The need to consolidate its foreign trade position cut into the resources available for domestic production and consumption.

The GDR's economic leadership drew up an "economic strategy for the eighties" which called for new ways of achieving continued economic growth by means of comprehensive "intensification." The idea was to take advantage of every opportunity to improve cost effectiveness and to rationalize and increase production. The economic strategy's main focus was on stepping up scientific-technological progress, cutting down on the use of materials in specific production processes and a restrictive investment policy which laid greater stress on modernization than on actual investment.

But the economic planners did not expect intensification to happen all on its own. Instead, they introduced a number of legislative changes in the management and planning process, e.g.

1. in the organizational sphere, the establishment of combines;
2. direct management (planning goals; standards and norms of material use; accounting procedures and a large number of special regulations;
3. indirect management (cautious upgrading of the profit motive;
4. tighter controls to assure conformance to planning goals.

Most of the changes in the functioning of the economic system took place in 1982 and 1983. After that, the flood of laws and directives began to subside markedly.

The 1981-85 5-year plan did not pass the Volkskammer until 3 December 1981, a full year after it had gone into effect. Its principal goals were the following:

- acceleration of annual economic growth from the (actual) 1976-80 average of 4.1 percent to 5.1 percent;
- a 6.1 percent annual reduction in industry consumption of "economically important" energy resources, raw materials and plastics;
- structural changes in favor of products of higher refinement, higher quality and greater export potential; also, return to more extensive use of domestic raw materials, particularly of soft coal in order to reduce dependence on imports;
- consolidation of foreign trade activities;
- the reduction in the domestic supply of goods primarily at the expense of investment projects (i.e. a two percent per annum cut) and not at the expense of the population (i.e. plans to increase retail trade volume by 3.7 percent per annum).

Some of the basic assumptions of the plan underwent changes at the very start of the 5-year planning cycle. This applies above all to the reversal of the position taken by Western banks. Up to the late seventies, the GDR's Western bank debt increased at an annual rate of more than 20 percent. As of 1981/82 the GDR was not even able to obtain follow-up credits any longer as major debt payments unexpectedly came due. This increased the urgency to reduce the Western obligations and resources became even scarcer than had originally been assumed. Many of the 5-year plan goals thus had already been overtaken by events at the very start of the planning period.<sup>6</sup>

According to the GDR planning guidelines, however, a 5-year plan is not redrawn even if original assumptions change. Any necessary adjustments are made on a year-by-year basis. In that sense, the success or lack of it during the first half of the eighties cannot be gauged by the extent to which the 5-year plan was fulfilled but only against the background of the total situation.

The scarcity of resources and the problems connected with adjustment and restructuring had a particularly strong impact on the plan during the initial phase. Things became especially critical in 1982 as the Western banks tightened up their policy vis-a-vis the GDR. The GDR reacted to this move with a drastic cut in Western imports in some areas while increasing its own exports at the same time. This resulted in domestic shortages and a slowdown in the economic growth rate to less than three percent. The remainder of the 5-year plan period presents a more favorable picture, i.e. average annual economic growth between 1981 and 1985 stood at 4.5 percent.

## Energy

The GDR reacted to the second rise in world oil prices (in 1979/80) by taking steps aimed at accomplishing the following two goals:

- a more rapid reduction in the specific energy consumption of the total economy;
- substitution of imported energy resources--principally oil--by domestically available soft coal.

In the course of the entire 5-year planning cycle, specific energy consumption (i.e. primary energy consumption per GNP unit) was reduced on the average by 3.5 percent per year. In 1980, it took 19 gigajoules (GJ) to produce 1,000 marks of GNP; by 1985, this had been reduced to 16 GJ's. During the final two plan years, however, the tempo of energy savings slowed down--with the savings being concentrated in the production sector it seems.

But in the non-production sector (particularly in the private households) energy consumption appears to have increased at a higher than average rate. There are two main reasons for this. For one thing, the GDR is the only CEMA member country which has kept private household energy costs constant for social policy reasons which has created less of a public awareness of the need to conserve energy. For another thing, improvements in personal comfort (e.g. central heating, hot water) and the use of long-life household consumer goods such as electrical appliances and passenger cars have led to an increase in energy consumption.

During the course of the 5-year plan just concluded, there have been major adjustments in primary energy consumption:

Primary Energy Consumption in Percent						
	19 80	1981	1982	1983	1984	1985 (est)
Soft Coal	63	65	68	69	69	70
Oil	17	17	14	13	11	10

There have been substantial savings in oil; particularly in heating oil. Consumption in absolute terms declined from 15 million tons in 1980 to just over 10 million tons. At the end of the 5-year plan period, in other words, the GDR had reached the point at which some 40 percent of its oil imports from the Soviet Union could be applied to the export sector (e.g. crude oil or petroleum products). As a result, the GDR was able to more than offset economic stagnation and the subsequent 10 percent overall cut in Soviet oil shipments in 1982/83 to 17.1 million tons through the introduction of conservation measures.

But the expansion of soft coal mining operations turned out to be extremely expensive and to have a profound impact on the environment. In 1985, 312 million tons were mined which was 54 million tons more than in 1980--and the actual goal set by the 5-year plan was overfulfilled by 22 million tons. In the process, the GDR strengthened its hold on the first spot among the world's soft coal producers.

Contrary to original plans, nuclear power plant capacity was not increased during the past 5 years. In 1981, plans had been laid to raise the Nord nuclear plant's capacity to 3,520 mW by 1985. Between 1980 and 1985 the nuclear power share in the production of electricity dropped from 12 to 10 percent.

In general terms, the GDR managed to achieve most of its energy policy goals in the course of the just concluded 5-year plan. But per capita primary energy consumption still remains 20 percent higher than in the FRG.

## Industry

Reorganization and scarce resources had a major impact on industrial development. The actual annual average rise in the production of industrial goods amounted to only about 4 percent as against the 5-year plan goal of 5.1 percent.

The basic goals for industry called for structural changes in both input and output:

- higher "refinement" of production;
- reduction in the use of materials;
- greater utilization of domestic raw materials, particularly of soft coal.

The conditions conducive to change were quite varied in the individual sectors and branches of industry. Marked progress in refining production during the 5-year plan period was accomplished in those areas in which major investments had been made, e.g. in the iron and steel industry (converter steel mills, structural steel production lines and rolling



mills). The percentage share of higher quality steels has increased in the interim. Sizable investments were also made in the chemical industry (to expand oil processing capability; to build a nitrogenous fertilizer plant and to create new ways of processing plastics). As a result, there were large gains in the production of carburetor fuels, aromatics and other petrochemicals. In these fields, the GDR's dependence on imports has clearly declined to the extent that special petrochemical products are now exported. Particularly great strides were made by the microelectronics industry whose plants received a good one-third of the investment capital disbursed by the ministry for electrical engineering and electronics in the early eighties. The increases in production of minicomputers and personal computers (which stood at 12,000 for the 1979-81 period and had climbed to more than 20,000 by 1985) as well as small data processing units are quite remarkable, indicating that the GDR has by now begun to mass-produce these items. On an international scale, of course, this is just a beginning both in terms of selection and quantity. A large portion of the output is destined for export to the Soviet Union.

Developments were not as favorable in the machine building industry, which was not singled out for investment activity. Modern technology is slow to make inroads in this sector. In 1985, there were 57,000 robots in operation, including "genuine," i.e. multi-axle, computer controlled robots. But the stepped-up use of robots becomes less efficient once these devices operate as "technological islands," i.e. are not tied closely into the overall production process. In the tool and dye industry, the number of computer controlled machines both produced and in use is quite small.

There is more than one way of assessing the reduction in the use of materials. The introduction of new standardization of input methods has definitely reduced energy and material waste. The very high consumption figures by international standards were reduced and the "mass-effectiveness ratio" was improved. But in many sectors, including the chemical industry, the "classical" electrical engineering industry and particularly in light industry, the scarcity of materials and the transition to processing domestic raw materials has resulted in slower growth and, in some instances, in poorer quality products.

#### Agriculture

In agriculture, the principal goals of the 5-year plan included the following:

- to increase yields in plant production, particularly in grains;
- to work for an overall improvement in the cost-yield ratio.

The first of these two goals was based on the consideration that farm output in the initial stage of the 5-year plan remained at the level of the early seventies and that the sizable grain imports from Western countries represented a drain on the economy in view of the precarious export picture. But the call for an improvement in the cost-output ratio was a matter of principle based on the fact that there were substantial production reserves available to increase output while reducing input. A debate had already taken place in the late seventies and then again at the 3d meeting of the SED Central Committee in 1981 which concluded that these reserves could not be mobilized with the help of increased "industrialization of agriculture." In view of the deterioration of overall economic conditions, neither the party leadership, nor the economic planners were particularly inclined to continue providing subsidies to this sector of the economy. For this reason, a number of measures to stimulate and reorganize the farm economy were adopted and implemented, among them:

- a price reform. Producer prices of farm and livestock products were raised. At the same time, the prior subsidies in the pre-production stage were dropped, e.g. for fuel, farm technology, feed, construction materials and construction itself. More realistic cost ratios were intended to stimulate greater economy in the pre-production phase and higher output of agricultural products;
- organizational modifications. The new institutions are the territorial production organization (the establishment of sub-units of the farming operations) and the cooperation councils (bodies to help coordinate farming and livestock operations). Both are designed to increase efficiency in agriculture.

The output picture in agriculture over the past 5 years is mixed. The farm economy stagnated until 1983. As in the FRG, this was followed by two record harvests with substantial increases in output. Since 1982, there have even been four consecutive record grain harvests. In view of the recent high yields, farm output for the 5-year plan cycle just concluded was 12 percent higher than the preceding 5-year period. Grain harvests were even 16 percent higher. Nonetheless, these advances did not suffice to reduce dependence on imports of foreign feed to any appreciable extent. Between 1981 and 1984, an annual average of 3 million tons of grain was imported--as compared to an average 3.5 million tons between 1976 and 1980. Livestock production increased at a far lesser but steadier rate.

## Transportation

Transportation needs are to be met at the least cost to the economy. The following goals were outlined to help achieve this end:

- reduction of specific transportation needs;
- increased use of energy-conserving carriers such as railroads and inland shipping; reduction of long-distance industrial trucking;
- expansion of the electrified rail network in order to cut down on the use of diesel locomotives in favor of electric locomotives.

In late 1981, new regulations on goods transport were put out, listing the principal guidelines on how to cut transportation costs. These focused on the optimization of transport and delivery relationships; the determination of planning goals for the utilization of goods transport services and the application of transportation standards. Standardization of transport services has since been regulated and the new domestic goods traffic tariffs have also been established.

Fuel allocation procedures have been tightened. Excess charges for long-distance transport as well as a fee on in-plant transport have been established. Gasoline prices for public consumption, on the other hand, have not been raised.

As a result, transportation costs in the GDR have dropped considerably. By 1984, the number of goods transports dropped by 13 percent and transport services by eight percent. But a partial shift in favor of in-plant transport (which does not show up in the statistics) cannot be ruled out entirely.

The railroad share of goods traffic rose from 67 percent in 1980 to 73 percent in 1984. The electrified rail network increased from 1,700 kilometers in 1980 to 2,165 kilometers in 1985. The 5-year plan rail electrification goal of 750 kilometers has thus been greatly overfulfilled.

## Investments

The plan called for total investments of 256 billion marks with an average annual reduction in outlay by 2.1 percent. In conjunction with this cut, a new investment policy was established. The number of new projects was cut; efficiency requirements were raised and controls by the Central State Inspectorate for Investments were tightened. The main focus was on modernization and reconstruction of existing facilities accompanied by a rise in assumed service life by 30 percent. The introduction of high productivity

labor-saving practices (e.g. robots) into existing processes as well as the combination of existing facilities for the transformation of energy and materials with data processing control mechanisms is expected to result in strong gains in efficiency.

The figures indicate that investments between 1981 and 1985 were about the same as in the preceding 5-year period, i.e. 264 billion marks at 1980 price levels. Annual investment outlay did decline between 1982 and 1984; but in 1981 and 1985 investments increased. The industry share of total investments was on the rise, particularly in energy and mining, in metallurgy and in electrical engineering/electronics and, in the early eighties, also in machine building and automobile production.

During the entire 5-year plan time frame a propaganda campaign was waged to encourage "indigenous production of labor-saving devices," calling on the factories themselves to produce at least some of this equipment on their own. But even this "indigenous production" is incorporated into the overall planning process; but the factories are given a certain latitude on how to go about it. In many instances, special production facilities have been established for this purpose which may also offer their specific solutions to other plants. In 1980, some 14 percent of the investment in equipment in the crafts and in industry originated in such indigenous ventures. The 5-year plan goal was to double "indigenous production." This was achieved in 1984, and the 1985 figure is 34 percent. Although this program does result in the production of urgently needed labor-saving devices, actual effectiveness of such investments depends to a large extent on the type of production the individual plants are engaged in.

#### Private Consumption

In spite of the goals set in the 5-year plan, the GDR economy has not succeeded in overcoming widespread shortages and in ensuring a steady rise in goods and services for its population. Until 1983, the increase in retail sales volume continued to decline and the sales of industrial goods actually dropped in 1982 and 1983. In 1982, there were numerous gaps and shortages, even in foodstuffs. Even leaving price increases aside, the consumers were actually worse off up to 1983. In the final analysis, the public was forced to carry a large share of the burden of economic consolidation. It was not until 1984 that the accustomed growth rates were achieved once more.

At present, per capita consumption of the principal foodstuffs is about the same as in the FRG, but the selection is not as big. More households are now equipped with long-life consumer goods. In addition to the already cited household equipment, the plan fulfillment report also lists the number of refrigerators and color television sets the production of which has been sharply increased in the GDR. But the quality of these goods is frequently not as good as in the FRG.

During the 5-year plan period just concluded additional reforms in the wage patterns were undertaken (e.g. through the introduction of productivity wages). At the heart of the reform program are the new base wages for production workers, consisting of the established minimum wage and a major part of the existing surplus wages. The base wage will continue to make up between 70 and 80 percent of the total while the remainder will be tied to "genuine" performance standards. The second major aspect of the reform measures is the new wage scale for masters and for university and technical school graduates among the workforce in the production sector. By the middle of 1985, productivity wage scales had been established for a total of 4.3 million employees. In most cases, this resulted in higher pay.

Retirement annuities were raised only once during the course of the 5-year plan cycle in 1984/85. Under the preceding 5-year plan there had been two increases. In December 1985, average pensions were probably about 10 percent higher than at the end of 1980. Between 1975 and 1980, they had climbed 35 percent. In addition, a number of improvements took place in social policy, e.g. the extension of paid maternity leave from 12 to 18 months following the birth of a third child and any children thereafter.

#### Government Budget

In fiscal policy, it is worth noting the more-than-normal expansion of government expenditures. The budget increased at an annual average of 7.5 percent during the 5-year plan period.

The principal factor in the growth of the budget was the sharp increase in transfer payments to the productive sector. The sum total of all subsidy-type expenditures (on behalf of the government-owned economy, agriculture, forestry and the food industry as well as subsidies for consumer prices and rents) was listed at 116 billion marks in the 1985 budget as compared to 66 billion marks in the 1980 budget, i.e. 50 percent of the total budget as against 42 percent in 1980. There were substantial increases in consumer price subsidies which totaled 40 billion marks in 1985 as compared to just under 17 billion marks in 1980. In line with the 1984 agricultural reforms, subsidy payments to agriculture went down. Transfer payments to private households about two-thirds of which were in the form of pensions remained almost constant during the course of the 5-year plan cycle.

When the 1985 planning figures are included, the just concluded 5-year plan shows that the highest average annual growth rates in government expenditures were on behalf of defense (at 6.7 percent) and internal security (6.2 percent). Nonetheless, their share of the total budget declined somewhat in the face of the sharp rise in subsidy payments. Since 1983, the defense ministry budget has exceeded expenditures for education.

75 percent of all government revenues came from the state-owned sector. Up to 1983, the factories and combines were taxed according to a so-called "three channel system" which consisted of net profit payments, production-related taxes and the production and commerce fund tax. As of early 1984, a fourth major tax (in the form of a contribution to the social fund) is collected which means that there also is a levy on manpower utilization. Production-related levies made up 23.5 percent of total state revenues in 1984 as against 24.5 percent in 1980; net profit payments accounted for 19 percent as against 25 percent in 1980; the production and commerce fund levy for 12 percent as against 11 percent in 1980 and the contribution to the social fund accounted for 9 percent. The sum total of tax payments by the cooperative and private economy and the public-at-large accounted for 10 percent of the state revenues collected in 1984 as compared to 9 percent in 1980. The share of social contributions dropped from 9.5 to 8 percent between 1980 and 1984.

#### Foreign Trade

The imbalance in foreign trade was a decisive factor in triggering the new economic strategy in the early eighties. In the meantime, some drastic changes have taken place:

- Trade with the West, which was an element of a credit-financed import policy in the seventies, underwent rigorous consolidation during the course of the 5-year plan just concluded. In 1981, the GDR was able to reduce the deficit for the first time and since 1982 has been registering substantial surpluses.
- In trade with the developing countries, conducted in part in freely convertible currency, the GDR has registered substantial trade surpluses since 1981.
- The GDR also was forced to reduce its deficit with the Soviet Union, its most important trading partner by far. Due to the worldwide rise in oil prices and the CEMA pricing system the GDR had been running up large deficits since 1975. Since 1983, they have declined appreciably, according to USSR foreign trade statistics.
- Between 1981 and 1985, the GDR's exports increased by 64 percent while imports only rose by 37 percent. Exports to non-socialist countries rose by 82 percent between 1981 and 1984 while imports climbed by 22 percent during the same time period.

As far as trade with the West is concerned, it is worth pointing out that there are major differences between the trends in trade between the two Germanys and trade with the West generally. The GDR was under particular constraints regarding the latter. It severely reduced its imports

in 1982 while increasing its export volume. By contrast, the GDR enjoyed a more favorable debt position vis-a-vis the FRG. The actual amount was smaller and the debt-delivery ratio was far better. For another thing, the GDR had amassed a surplus in inner-German trade since 1980, enabling her to procure urgently needed imports from the West through inner-German trade channels, thereby holding down the negative impact of her restrictive import policies vis-a-vis the Western countries to acceptable levels. But the export gains in trade with the West were not achieved in the traditional export industries (such as capital and consumer goods) but rather in the basic materials field with petroleum products and crude oil accounting for a large part of the export gains.

Net indebtedness to the West (i.e. the sum total of credits less total assets), insofar as it can be ascertained on the basis of BIS and OECD statistics and including the total surplus in inner-German trade, has been reduced appreciably. By mid-1985, it stood at \$6.3 billion as compared to almost twice that amount, i.e. \$ 11.3 billion, in 1980. The reduction is not so much due to repayments as to an increase in holdings, which amounted to \$5.3 billion in mid-1985. Pursuant to the GDR slogan of "liquidity is more important than rentability" this is an indication of the reaction to the extremely precarious liquidity position of the GDR in the early eighties.

In the eyes of Western banking circles, the GDR is a reliable borrower once more. During the past 2 years, initial credit targets were exceeded in view of the great interest shown by the banks. In 1984, borrowing totaled some \$ 0.9 billion and the figure for 1985 was some \$1.1 billion. This reversal in the position of the banks appears to be due in part to the fact that the GDR has been paying back its loans very promptly and also that numerous West German banking institutions surprised everyone by extending a DM 1.1 billion loan to the GDR, accompanied by a loan guarantee by the West German government, in 1983.

The Plan for 1986: A Model for the New 5-Year Plan ?

In April 1986, the 11th SED party congress will vote on the 1986-1990 5-year plan. Thus far, no announcement has been made about the concepts underlying it.

The major targets of the 1986 economic plan (representative of the first year of the new 5-year plan cycle) includes the following major targets:

- Produced GNP: + 4.4 percent;
- Industrial goods output of economy as a whole: + 3.8 percent;

- Investments in the economy: 63.1 billion marks, i.e. a one-percent rise, adjusted for inflation;
- Net cash revenues and retail trade volume: 4 percent each;
- Foreign trade volume: + 5 percent.

The targets for overall economic growth in 1986, in other words, are about the same as in the past few years. As before, there is an insistence on cutting specific consumption in production--though to a somewhat lesser extent than in previous years. Investment programs are to be increased slightly. As compared to the extreme efforts made in years past, export targets have been toned down somewhat. In view of the fact that domestic consumption (in terms of investments and retail trade) is expected to grow more slowly than overall economic output and some price increases will have to be taken into account in the retail sales volume, the planned rise in exports appears to be greater than that in imports.

These basic guidelines would also apply to a medium-term concept. The economic planners are still looking to "intensification" to provide additional growth reserves and they are probably right in making that assumption. Energy use in the GDR is still relatively high and products are still too material-intensive by international standards. Still, the more easily accessible portion of the "savings potential" would seem to have been exhausted by now. Any further savings will be more difficult to achieve because they would call for basic shifts to new equipment, materials and production processes. "Intensification" alone will not suffice to achieve desired growth in the medium term. There will also have to be more investment in order to accelerate the restructuring process and promote greater refinement.

Another conceivable medium term goal would seem to be continued surpluses in foreign trade. Such surpluses are particularly called for in trade with the Soviet Union so that accumulated deficits can be overcome. In light of its unhappy experiences in 1981/82, the GDR is likely to try to avoid any renewed increase in its Western debts in spite of the more accommodating attitude on the part of Western lenders.

As far as net revenues and retail trade volume are concerned, the 4-percent rise of each would seem to fit into the long-range goals of the economic planners who believe that improvements in the availability of goods and an eagerness to work hard are directly related to one another.

In view of all of this, it is not unlikely that the 1986 annual plan already serves as a rough model for the new 5-year plan.



#### FOOTNOTES

1. NEUES DEUTSCHLAND, 18/19 Jan 86, p. 3ff.
2. Statistical Indicators of Short Term Economic Changes in ECE Countries. ECE, Geneva.
3. Soviet literature cites combines as a good example of the integration of research and production. Cf. A. G. Aganbegjan, "Main Trends of Economic Policy" [in Russian]. EKO, No 11, 1985, p. 19.
4. Cf. "Guidelines for the Relationship Between Industry Combines and Institutions of the Academy of Sciences and the Technical Schools," GDR Legal Gazette, Part I/1986, p. 9ff.
5. Cf more fully in Doris Cornelsen, Manfred Melzer, Angela Scherzinger, "DDR Wirtschaftssystem: Reform in kleinen Schritten" [The GDR Economic System: Reforms by Slow Stages] in VIERTELJAHRESHEFTE ZUR WIRTSCHAFTSFORSCHUNG [Economic Research Quarterly], No. 2, 1984, p. 200ff.
6. It had already become plain by mid-1982 that the GDR would experience a flatter growth curve during the 5-year plan cycle than had been planned. Cf. Doris Cornelsen, "Wachstumschancen in der DDR" [Chances for Growth in the GDR] in WOCHENBERICHT DES DIW [DIW Weekly Report], No 32, 1982.
7. Cf. "Der primaere Energieverbrauch in der DDR und seine Struktur" [Primary Energy Consumption in the GDR: Its Structure], edited by Jochen Bethkenhagen in WOCHENBERICHT DES DIW, No. 51-52/1985.
8. NEUES DEUTSCHLAND, 17/18 Jan 81, p. 1.
9. High quality industrial consumer goods and specialty foods are subject to taxation by way of output-related levies. The production and commerce fund levy is a tax on investment and turnover capital to be paid out of profits.

# GDR Economic Indicators

Percentage Increase Over Preceding Year

(1)	1981 - 1985 <sup>1</sup>	1981	1982	1983	1984	1985		1986
	Plan	(2)	Ist			Plan	Ist <sup>2</sup>	Plan
<b>Produziertes Nationaleinkommen (3)</b>	5,1	4,8	2,6	4,4	5,5	4,4	4,8	4,4
<b>Primärenergieverbrauch in der Volkswirtschaft</b>		0,3	-1,8	-0,1	2,7		2	
dar.: Rohbraunkohle (4)		3,5	2,9	1,6	3,5			
<b>Industrie (5)</b>								
Warenproduktion <sup>3</sup> (6)	5,1	5,5	3,7	3,9	4,3	3,8	4,4	3,8
Bereiche der Industrieministerien								
Warenproduktion	5,5	5,9	4,3	4,6	4,5	4,3	4,5	4,3
Nettoproduktion <sup>3</sup>		7,0	5,6	7,1	8,3	8,0	9,0	8,5
Arbeitsproduktivität <sup>3</sup>								
(Warenproduktion)	5,2	4,8	3,4	3,8	3,7		4,2	
(Nettoproduktion)		7,0	4,7	5,4	7,6	7,1	8,4	8,1
<b>Bauwirtschaft (7)</b>								
Bauproduktion (zentralgeleitet) <sup>3</sup>	4,2	4	2,9	3,7	2,7	3,4	3,9	3,2
Fertiggestellte Wohnungen	188,0	185,4	187,1	197,2	207,0	203,1	212,2	209,2
davon: Neubau	120,0	125,7	122,4	122,6	121,7	117,6	120,7	118,6
Modernisierung	68,0	59,6	64,6	74,6	85,4	85,6	91,5	90,6
<b>Landwirtschaft (8)</b>								
Bruttobodenproduktion <sup>4, 5</sup>	2,1/2,3	1,2	- 2,1	0,6	16,7	-5,5	1,4	-4,2
dar.: Getreideernte (in Mill.t) <sup>6</sup>	10,4	8,9	10,0	10,1	11,5	10,7	11,6	10,9
Tierische Marktproduktion <sup>7, 5</sup>	0,9	2,8	- 6,6	2,7	6,7	0,4	3,8	-1
<b>Binnenverkehr<sup>8</sup> (9)</b>								
Gütertransportmenge		-3,2	- 7,3	-2,2	-1,1		- 0,7	
dar.: Eisenbahn		1,2	2,3	1,0	3,6		3,3	
Binnenschifffahrt		1,9	1,2	3,8	7,0		-13,3	
Straßenverkehr		-5,1	-12,3	-3,9	-4,0		-0,4	
Gütertransportleistung		-2,1	- 6,7	-0,3	1,4			
dar.: Eisenbahn		-1,1	- 3,1	1,6	3,2	2,9		1,6
Binnenschifffahrt		9,3	- 2,9	5,9	9,0	8,7		9,2
Straßenverkehr		-5,2	-18,5	-5,3	-5,8			
Elektrifizierte Eisenbahnstrecke	7,2/7,6	6,7	6,7	8,6	10,7	12,7	12,7	11,3
<b>Einzelhandel, Umsatz<sup>9</sup> (10)</b>	3,7	2,5	1,0	0,7	4,2	4,0	4,2	4,0
davon: Nahrungs- und Genußmittel	<3,7	2,9	2,1	1,6	3,3		2,7	
Industriewaren	>3,7	2,1	- 0,1	-0,1	5,1		5,6	
<b>Außenhandel, Umsatz<sup>9, 10</sup> (11)</b>		10,7	9,2	10,6	8,4	8,0	3,5	5,0
davon: Einfuhr		6,4	4,3	9,0	9,6		3,6	
Ausfuhr		15,4	14,1	12,0	7,3		3,4	
Saldo (in Mrd. Valuta-Mark)		- 1,1	+ 5,4	+8,0	+6,9		+7	
<b>Nettogeldeinnahmen der Bevölkerung (12)</b>	3,7	3,1	2,8	2,3	3,9	4,0	4,0	4,0
<b>Investitionen, insgesamt<sup>11</sup> (13)</b>	-2,1	2,7	- 5,2	-0,0	-4,9	0	2	1

Key:

1. Planning goal
2. Actual
3. Produced GNP
4. Primary energy consumption throughout economy; soft coal share of total
5. Industry
6. Goods production
  - Industry ministry sectors
  - Goods production
  - Net output
  - Labor productivity
  - (Goods production)
  - (Net output)
7. Construction industry
  - (Centrally controlled) construction activities
  - Completed apartments
  - Newly built and remodeled in thousands
8. Agriculture
  - Gross farm output
  - Grain harvests (in millions of tons)
  - Livestock market production
9. Inland transport
  - Transport quantities
    - By rail
    - By inland shipping
    - By road
  - Transport services
    - By rail
    - By inland shipping
    - By road
  - Electrified railroad track
10. Retail trade, volume
  - Foods and specialty foods
  - Industrial goods
11. Foreign trade, volume
  - Imports
  - Exports
  - Balance (in billions of foreign exchange marks)
12. Net cash earnings of population
13. Total investment

FOOTNOTES

1. Average annual growth
2. Preliminary data, partially estimated
3. 1981-1984 computed on basis of index statistics

4. Total crops, figured according to grain units based on GDR grain key
5. 1981-1985 planning figure: average annual growth based on 1976-80 average in light of planned volume for 1985
6. 1981-85 planning goal: projected grain harvest for 1985
7. Sum total of state amounts of slaughter cattle, milk, eggs and wool; computed in grain units
8. Not including ocean shipping and civil aviation
9. Current prices
10. Including inner-German trade
11. Not including general overhaul; at constant prices. Absolute figures on investments planned for 1985 and 1986 and actually made in 1985 were computed on the basis of 1980 prices.

#### SOURCES

GDR Statistical Yearbooks; Statistical Indicators of Short Term Economic Changes in ECE Countries, Geneva; Economic Plans (most recently in GDR Legal Gazette, Part I/1985, No. 30; Plan Fulfillment Reports (most recent reference in NEUES DEUTSCHLAND, 18/19 Jan 86, pp 1 and 3ff; DIW computations and estimates.

## Industrial Goods Production

### Percentage Increase Over Preceding Year

(1)	Industriebereich	1976-1980 <sup>2</sup>	1983	1984	1985 <sup>3</sup>	1981-1985 <sup>2,3</sup>
(2)	Energie- und Brennstoffindustrie	4,8	3,9	4,6	3,2	3,8
(3)	Chemische Industrie	4,8	2,9	4,0	3,4	3,9
(4)	Metallurgie	4,0	3,0	3,0	3,1	3,9
(5)	Baumaterialienindustrie	2,3	0,4	2,1	1,3	0,8
(6)	Wasserwirtschaft	3,5	-0,4	-0,4	0,5	1,6
(7)	Maschinen- und Fahrzeugbau	5,8	3,8	4,0	4,6	4,7
(8)	Elektrotechnik, Elektronik, Gerätebau	8,9	8,7	9,4	10,7	9,2
(9)	Leichtindustrie	4,3	2,5	3,4	3,9	3,4
(10)	Textilindustrie	3,8	3,3	2,9	1,8	3,1
(11)	Lebensmittelindustrie	2,7	3,6	3,5	2,6	2,3
(12)	Gesamte Industrie	4,7	3,9	4,3	3,9	4,3

#### Key:

1. Sector of industry
2. Energy and fuels
3. Chemical
4. Metallurgy
5. Construction
6. Water management
7. Machinery and automobiles
8. Electrical engineering, electronics, equipment
9. Light industry
10. Textiles
11. Food
12. Industry total

#### Footnotes

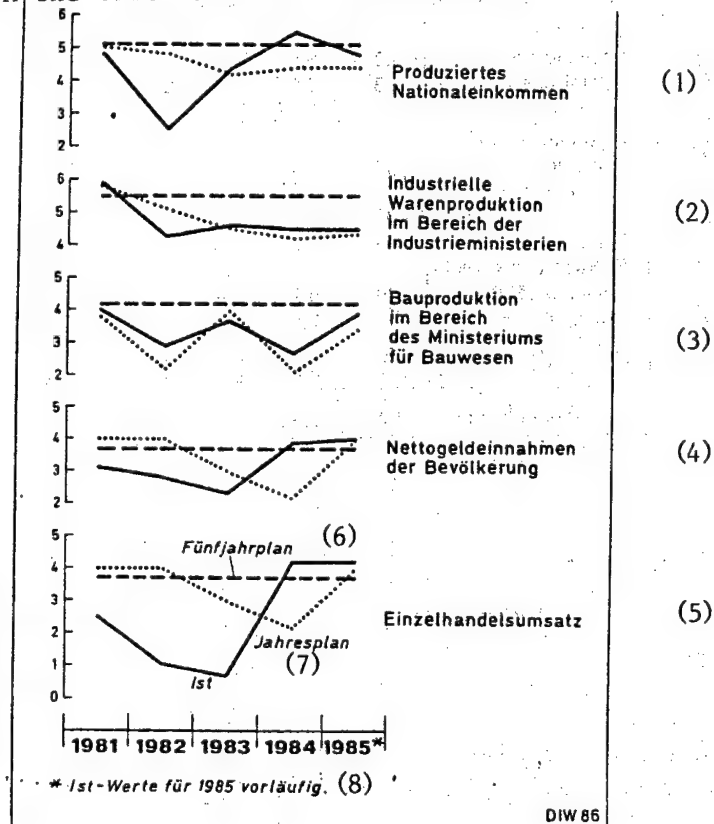
1. Computed on basis of monthly index figures; actual figures based on original official figures adjusted by workday
2. Average annual growth
3. Jan-Sep 1985 as against same period in previous year

#### Sources

Statistical Indicators of Short Term Economic Changes in ECE Countries, ECE Geneva; DIW computations.

# Planning Targets and Actual Attainment of Major GDR Economic Indicators

in the 1981-85 5-Year Plan Period



Key:

1. Produced GNP
2. Production of industrial goods in the industry ministries sector
3. Construction output in the ministry of construction sector
4. Net cash earnings of the population
5. Retail trade volume
6. 5-year plan
7. Annual plan
8. Preliminary figures for 1985

# Major Economic Trend Indicators--GDR 1976-1985

1975 and 1980 respectively=100

(1)	1980 gegen- über 1975	1985 gegenüber 1980	
	Ist	(3) Plan	Ist
(5) Produziertes Nationaleinkommen	122	128	124
(6) Industrielle Warenproduktion --	128 <sup>1</sup>	128	124 <sup>1</sup>
dar.: im Bereich der Industrieministerien	.	131	126 <sup>1</sup>
(7) Arbeitsproduktivität (Basis Warenpro- duktion) t.Bereich d.Industrieministerien	127 <sup>1</sup>	129	122 <sup>1</sup>
Bauproduktion im Bereich des Ministeriums für Bauwesen	120 <sup>1</sup>	123	118 <sup>1</sup>
(8) Fertiggestellte Wohnungen <sup>2</sup> ) in 1000	813	940	989
davon: Neubau )Wohnungen	559	600	613
Modernisierung )	254	340	376
(9) Bruttobodenproduktion <sup>3</sup>	101 <sup>5</sup>	105- 107 <sup>6</sup>	112 <sup>5</sup>
(10) Tierische Marktproduktion <sup>4</sup>	112 <sup>5</sup>	102 <sup>7</sup>	105 <sup>5</sup>
(11) Einzelhandelsumsatz, gesamt	122	120	113
davon: Nahrungs- und Genußmittel	118	120	113
Industriewaren	126	120	113
(12) Nettogeldeinnahmen der Bevölkerung	120	120	117
(13) Investitionen	127 <sup>5</sup>	97 <sup>8</sup>	100 <sup>5</sup>

## Key:

1. 1980 as against 1975
2. 1985 as against 1980
3. Planning goal
4. Actual
5. Produced GNP
6. Industrial goods production; share of industry ministry sector
7. Labor output (in terms of goods production) in industry ministries sector
8. Construction in ministry of construction sector; completed apartments; new, remodeled in thousands of units

9. Gross farm production
10. Livestock market production
11. Retail trade volume, total; share of foods and specialty foods; industrial goods
12. Net cash earnings of population
13. Investments

#### Footnotes

1. Computed on basis of index figures
2. Total output during 5-year period
3. Sum total of crop production
4. Sum total of state output of slaughter cattle, milk, eggs and wool
5. Total volumes for 1971-75 and 1976-80 respectively in percent of total volumes for 1971-75 and 1976-80 respectively
6. Planned average yield per hectare for 1985 based on 1980 per hectare yields
7. Planning quantities for 1985 based on 1980 amounts
8. Planned total of 256 billion marks as related to 1976-80 totals.

#### Sources

GDR Statistical Yearbooks; 5-Year Plan (in GDR Legal Gazette, Part I/1981, No. 35; Plan Fulfillment Reports (most recent reference in NEUES DEUTSCHLAND, 18/19 Jan 86); DIW computations and estimates



# Selected Long-Lasting Technical Consumer Goods in GDR

## Households

### Figures per 100 Households

		1980	1985
(1)	Personenkraftwagen	37	45
(2)	Haushaltskälteschränke	99	99
	dar.: Gefrierschränke <sup>2</sup>	12	28
(3)	Fernsehempfänger <sup>3</sup>	88	93
	dar.: Farbfernsehgeräte	13	38

### Key:

1. Passenger cars
2. Refrigerators; freezers
3. Television sets; color TV's

### Footnotes

1. Number of households where such consumer goods are available, as computed on the basis of 100 households
2. 1980 figures based on estimates
3. Licensed sets per 100 households

### Sources

GDR Statistical Yearbook for 1985, p. 281; NEUES DEUTSCHLAND, 18/19 Jan 86, p. 5; DIW estimates.

# Selected Data on Income and Consumption Trends

	1981 - 1985 <sup>1</sup> Plan	1980	1981	1982	1983 <sup>2</sup>	1984 <sup>2</sup>	1985 <sup>2</sup>	1981 - 1985 <sup>3</sup>
(1)	in vH	(2) in Mrd. Mark						in vH
Nettogeldeinnahmen der Bevölkerung <sup>4</sup>	3,7	120,9	124,7	128,2	131,1	136,2	141,6	3,0
davon: Nettolöhne und - gehälter		75,0	77,8	80,3	82,7	86,0		3,5 <sup>6</sup>
(je Arbeitnehmer in Mark) (3)		(9020)	(9310)	(9550)	(9780)	(10 130)		(2,9) <sup>6</sup>
Renten <sup>5</sup>		15,8	15,7	15,6	15,5	15,5	16,4	-0,1
sonst. Einnahmen		30,1	31,2	32,3	32,9	34,7		3,4 <sup>6</sup>
Ersparnis (4)		2,8	3,2	4,6	5,6	5,5	5,9	4,3 <sup>7</sup>
Einzelhandelsumsatz (5)	3,7	100,0	102,5	103,5	104,3	108,7	113,2	2,1
		(7) Zunahme des Einzelhandelsumsatzes in vH						
Insgesamt	3,7	4,5	2,5	1,0	0,7	4,2	4,2	2,1
davon: Nahrungsmittel		2,0	2,3	1,9	1,2	2,7		
Genußmittel (6)	<3,7	5,3	4,0	2,6	2,2	4,3	2,7	2,5
Industriewaren	>3,7	5,8	2,1	-0,1	-0,1	5,1	5,6	1,7

## Key:

1. In percent
2. In billions of marks
3. Net cash earnings of population  
Net salaries and wages  
(Per employee in marks)  
Pensions and annuities  
Other income
4. Savings
5. Retail trade volume
6. Total  
Food  
Specialty items  
Industrial goods
7. Percentage growth of retail trade volume

#### Footnotes

1. Average annual increase
2. Preliminary figures
3. Average annual gain, including all annual data
4. Includes contributions to voluntary supplementary pension scheme
5. Pensions and annuities disbursed by social security system and government
6. 1981 to 1984
7. Changes in savings balances

#### Sources

GDR Statistical Yearbook for 1985; computations and estimates by DIW.

# Major Social Programs Introduced During 1981-85 5-Year Plan

(1)	Zeitpunkt des Inkrafttretens	Art der Maßnahme	(2)
	1. September 1981	Erhöhung der Lehrlingsentgelte, Beihilfen für Schüler der 11. und 12. Klassen, Stipendien der Studenten	(3)
	1. Dezember 1981	Erhöhung des staatlichen Kindergeldes um 30 bis 50 Mark für 3. und weitere Kinder auf einheitlich 100 Mark	(4)
	1. Juni 1984	Maßnahmen zur Verbesserung der Arbeits- und Lebensbedingungen für Familien mit drei und mehr Kindern (u.a. Verlängerung der bezahlten Freistellung von der Arbeit nach der Geburt von 3. und weiteren Kindern von 12 auf 18 Monate)	(5)
	1. Dezember 1984	Erhöhung der Mindestrenten von über 2,2 Mill. Rentenempfängern um 30 Mark	(6)
	1. Dezember 1985	Erhöhung des Festbetrages der Renten für über 1 Mill. Rentenempfänger (deren Renten oberhalb der Mindestrenten liegen) um 30 Mark. Erhöhung der Ehegattenzuschläge (für Ehegatten ohne eigenes Einkommen) um 50 Mark	(7)

## Key:

1. Effective date
2. Type of program
3. Increase in apprentices' pay; support payments for 11th and 12th year students; student scholarships
4. Increase in government child support by 30 to 50 marks to a uniform rate of 100 marks for third and additional children
5. Programs to improve working and living conditions of families with three or more children, e.g. extension of maternity leave from 12 to 18 months following birth of third or additional children
6. 30 mark increase in pension payments to 2.2 million annuitants
7. 30 mark increase in base payments of more than one million pensioners drawing higher than minimum annuities. 50 mark increase in spousal support payments (for spouses with no income of their own).

# GDR Foreign Trade by Groups of Nations

	1976- 1980 <sup>2</sup>	1980	1981	1982	1983	1984	1985
	in Mrd. VM <sup>3</sup> (1)						
Einfuhr, insgesamt (2)	53,18	62,97	67,00	69,88	76,20	83,50	86,50
Sozialistische Länder <sup>4</sup>	35,00	40,09	44,91	47,85	50,64	55,62	57,40
RGW-Länder <sup>5</sup>	33,42	37,90	42,80	45,77	48,41	53,03	55,50
dar.: UdSSR (3)	18,61	22,57	25,81	29,04	30,87	33,81	35,10
Westliche Industrieländer <sup>6</sup>	15,45	19,19	19,76	19,06	22,01	24,21	25,60
Entwicklungsländer	2,73	3,69	2,33	2,97	3,54	3,67	3,50
Ausfuhr, insgesamt (4)	47,42	57,13	65,93	75,23	84,23	90,40	93,50
Sozialistische Länder <sup>4</sup>	34,33	39,72	43,64	47,98	53,98	58,67	61,50
RGW-Länder <sup>5</sup>	32,65	37,39	41,55	45,73	51,89	56,49	59,30
dar.: UdSSR (3)	16,80	20,04	24,08	26,13	29,95	33,30	34,70
Westliche Industrieländer <sup>6</sup>	10,40	13,77	18,08	21,79	25,14	27,16	27,60
Entwicklungsländer	2,69	3,65	4,21	5,46	5,1	4,57	4,40
	Salden der DDR (6)						
Insgesamt (5)	-28,80	-5,84	-1,07	+5,35	+8,03	+6,90	+7,00
Sozialistische Länder <sup>4</sup>	-3,34	-0,37	-1,27	+0,13	+3,34	+3,05	+4,10
RGW-Länder <sup>5</sup>	-3,83	-0,51	-1,25	-0,04	+3,48	+3,46	+3,80
dar.: UdSSR (3)	-9,06	-2,53	-1,73	-2,91	-0,92	-0,51	-0,40
Westliche Industrieländer <sup>6</sup>	-25,27	-5,42	-1,68	+2,73	+3,13	+2,95	+2,00
Entwicklungsländer	-0,21	-0,03	+1,88	+2,49	+1,56	+0,90	+0,90

## Key:

1. In billions of foreign exchange marks
2. Total imports
3. Socialist countries
  - CEMA countries
  - USSR alone
  - Western industrialized nations
  - Developing countries
4. Total exports
5. Totals
6. GDR balances

#### Footnotes

1. At current prices; computed fob purchaser and/or seller country
2. 5-year plan average; balances=sum totals of individual years
3. VM=Valutamark, i.e. statistical accounting unit used in GDR foreign trade transactions. Exchange rate: 4.67 VM=1 Trbl (transfer ruble). Exchange rate to Western currencies varied according to fluctuations in parity between transfer ruble and convertible currencies. 1985 exchange rate was 1 VM=DM 0.754. Inaccurate totals due to rounding off.
4. CEMA countries and other socialist countries, particularly PRC, Yugoslavia, North Korea, Laos.
5. Albania, Bulgaria, CSSR, Cuba, Mongolia, Poland, Romania, USSR, Hungary and Vietnam (since 1978; had been included among socialist countries until 1977).
6. All of the so-called capitalist industrial nations, i.e. the OECD member nations.

Note: As of 1980, the GDR Statistical Yearbook no longer provides a detailed listing of countries or groups of nations.

#### Sources

1985 GDR Statistical Yearbook, CEMA and individual CEMA countries' statistical yearbooks and foreign trade yearbooks; OECD trading partner data; computations by DIW.

# GDR Western Debt

	1977	1978	1979	1980	1981	1982	1983	1984	1. Hj. 1985
	(1) in Mrd. US-\$								(2)
Schuldenstand der DDR <sup>1</sup> (3)									
Bankkredite (BIZ/OECD) (4)	5,28	6,79	8,55	9,93	10,73	9,11	8,60	8,54	8,78
Öffentliche und öffentlich garantierte Handelskredite (5) (BIZ/OECD)	1,00	1,20	1,30	1,40	1,50	1,62	1,95	1,71	(1,71)
Verpflichtungen aus dem innerdeutschen Handel <sup>2</sup> (6)	1,38	1,96	2,26	1,96	1,62	1,57	1,49	1,00	1,06
Bruttoverschuldung (7)	7,66	9,95	12,11	13,29	13,85	12,30	12,04	11,25	(11,55)
Guthaben (BIZ) (8)	-0,90	-1,32	-1,96	-2,15	-2,18	-1,99	-3,35	-4,54	-5,26
Nettoverschuldung (9)	6,76	8,63	10,15	11,14	11,67	10,31	8,69	6,71	(6,29)
Zinszahlungen <sup>3</sup> (10)	0,36	0,51	0,83	1,19	1,58	1,11	0,73	0,59	.
Export der DDR <sup>4</sup> (11)	2,50	2,86	3,57	4,53	5,37	6,43	7,27	7,22	.
	(14) Relationen								.
Nettoverschuldung (12)									
je Einwohner in US-\$	403	515	606	666	697	617	520	402	(378)
in vH der Exporte	270	302	285	246	217	160	120	93	.
Zinszahlungen in vH der Exporte (13)	14	18	23	26	29	17	10	8	.

## Key:

1. In billions of U.S. dollars
2. First half of 1985
3. GDR indebtedness
4. Bank loans
5. Government and government-guaranteed trade loans
6. Obligations resulting from inner-German trade
7. Gross indebtedness
8. Holdings
9. Net indebtedness
10. Interest payments
11. GDR exports
12. Net indebtedness  
per capita in U.S. dollars  
in percentage of exports
13. Interest payments in percentage of exports
14. Ratios

#### Footnotes

1. Insofar as statistical data are available. In all instances at end of reporting period.
2. Cumulative negative balance of GDR, figured in U.S. dollars.
3. Estimate based on net indebtedness (not including swing credits). The following average interest rates were used (cf. ECE Annual Reports) to determine interest payments: 1977: 5.6%; 1978: 6.2%; 1979: 8.5%; 1980: 11.1%; 1981: 13.9%; 1982: 11.0%; 1983: 8.6%; 1984: 8.9%.
4. Exports to Western industrialized nations ("capitalist industrial nations") based on GDR statistical data; computed in U.S. dollars via ruble exchange rate.

#### Sources

BIS: Semiannual Statistics. Claims and obligations of reporting banking institutions; not including inner-German capital transactions; not including banks which do not report to the BIS; not including loans from non-banking institutions and supplier credits. BIS/OECD: Statistics on External Indebtedness: Bank and Trade-Related Non-Bank External Claims in Individual Borrowing Countries and Territories. Reports on government and government-guaranteed trade loans commenced in 1982; estimates only for 1977-81 period. For obligations from inner-German trade: Trusteeship Office for Industry and Commerce. DIW, Berlin.

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#### CHANGES PROPOSED IN NEW PENSION PLAN

Warsaw ZYCIE GOSPODARCZE in Polish No 3, 19 Jan 86 p 2

[Article by Irena Dryll: "How Much Will the Retiree Actually Get?"]

[Excerpts] For over 3 years, i.e., since the law on annuities and pensions for workers and their families was passed on 14 December 1982, over 5 million annuitants and pensioners have been waiting for 1 March 1986. On that date the most important provision of the law--automatic, annual increases are to go into effect. According to Article 74 of the law, the base for calculation of annuities and pensions will be increased each year by the percentage growth of average monthly salaries and wages in the public sector during the year preceding the increase, but no more than 150 percent of the amount of the growth of these salaries and wages. A change in this provision is now being proposed.

I am referring to the proposals contained in the government's draft law on increases to annuities and pensions in 1986. Last week (8 March) this draft law reached the Sejm and underwent preliminary discussion (10 March) at a meeting of the Commission for Social Policy, Health and Physical Culture. This week (16 March) the first reading of the draft took place at a joint meeting of this Commission with the Commission for Legislative Work. The draft of the automatic-increase law is coupled to the retirement law in such a way that if it is passed, art 74 on automatic increases will have no meaning. This is because the draft law proposes that instead of using the index of average wage-growth in 1985 (estimated preliminarily at 18 percent), an increase of 15 percent (which represents a preliminary estimate of last year's increase in the cost of living) be applied. Furthermore, the amount of the increase of the calculating base cannot be greater than 3,000 zlotys, which means a 100 percent growth in the average wages and salaries last year (Article 74 speaks of a 150 percent growth).

According to the calculations of the Ministry of Labor, presented at a press conference with the Minister of Labor, Wages and Social Affairs, Stanislaw Gebala, on the 9th of this month, the increases made according to the rules proposed will cost 18 billion zlotys less this year. The cost of the entire automatic-increase operation, in accordance with the retirement law, is estimated at approximately 90 billion zlotys (and that is how much money has been reserved for this purpose in the National Annual Plan for 1986); however,

the cost of the increase, as modified in the draft law, is estimated at 72 billion zlotys. In the second case, the average annuity-pension benefit would increase by 1,425 zlotys, i.e., approximately 400 zlotys less than in the first case. It is proposed that the money thus saved be allocated in some way for an additional increase in annuities and pensions. I say "in some way" because it is really difficult to talk about an additional increase when it is to come out of the same account and at its expense. To put it precisely, we are talking about another distribution of money from the same sum: 90 billion zlotys.

The problem is that automatic increases will not take care of the "arrears." They will not eliminate or even alleviate past inequities in benefits because this is not their purpose. They are aimed at maintaining a steady, real value of the benefits paid, and at preventing the establishment of new "old-file" inequities. According to the drafters of the law, the "arrears" are to be taken care of by an increase made outside of the automatic-increase mechanism.

It is proposed, therefore, that the benefits granted to the end of 1981 be increased each year during 1986-1989 (four instalments) by 12.5 percent, but by no more than 2,500 zlotys, a total of 50 percent. Benefits granted in 1982 would be increased each year during 1986-1990 (five instalments) by 7 percent, but by no more than 1,500 zlotys, a total of 35 percent. The reduction in the particular instalments is aimed at reducing the increases in the higher benefits, those exceeding 20,000 zlotys, i.e., more than the present average wages and salaries. With the increase, the base for further increases, set for 31 August 1986, would be larger, making for higher successive increases.

The increase, according to the draft law, would go into effect on 1 September 1986 and would cover 4 million annuities and pensions granted up to 1982 (78 percent of all annuitants and pensioners). The average benefit as a result of the first instalment of the increase would grow, on an average, by 1,140 zlotys monthly in the case of benefits granted up to the end of 1981, and by 665 zlotys in the case of benefits granted in 1982.

The first instalment this year will cost 18 billion zlotys and the entire operation will cost approximately 210 billion zlotys. .

As of September of this year, due to the higher base and the increase, the average benefit will grow by 2,565 zlotys, i.e., 26.1 percent in the case of benefits granted by the end of 1981 (and there are the most of these--3.5 million); by 2,090 zlotys, i.e., 20.9 percent in the case of the 1982 benefits; and by 1,425 zlotys, i.e., 14.3 percent, in the case of 1983 and 1984 benefits. (The latter, therefore, will not grow at this rate or even less than the cost of living, the growth of which was estimated at 15 percent for last year.)

In a case where a person is entitled to two or more benefits, only one benefit will be increased, unless the second benefit is a veteran's disability pension or a benefit based on an on-the-job accident.

The draft law, its writers say, is temporary. It establishes the principles for calculating and granting increases for the year 1986 only.

So much for the overview of the draft law and its social background. It is praiseworthy insofar as intent is concerned. It is good that some thought is being given to increasing pensions and annuities granted several years ago. It is bad that this is to be done at the cost of violating a statutory provision on automatic increases. The main motive is to find money for an increase and the fear that the already shaky market equilibrium will be further rocked is justified. Hence the proposal to finance the additional increase out of the automatic-increase funds, i.e., kill two birds with one stone. This will not ensure a growth of annuities and pensions relatively proportional to the growth of wages. When inflation exceeds 10 percent a year, the gap between wages and benefits and between old and new benefits, will widen, and the problem of the "old-file benefits" will recur.

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ECONOMY

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## LENIN STEELWORKS PRODUCTIVITY PROBLEMS ANALYZED

### Production Growth Barriers Viewed

Warsaw ZYCIE GOSPODARCZE in Polish No 3, 19 Jan 86 p 8

[Article by Stanislaw Suchonski, Economic Affairs Director, Lenin Iron and Steel Works: "Self-Evaluation"]

[Excerpts] The Lenin Iron and Steel Works is a multiplant enterprise, with a total of 25 plants and independent departments, employing 33,800 people. Its role in the national economy is demonstrated by its share in total metallurgical production: 37 percent of all pig iron produced, 30 percent of all steel, and 33 percent of all rolled finished products. It is the exclusive domestic producer of hot- and cold-rolled sheet in thicknesses up to 5 mm, tinplate and world-standard electrical sheet: transformer and generator. It also has a large share in the production of tubes, cold-bent shapes and zinc-coated sheet--all based on Lenin Steelworks sheet. A large part of the Lenin Steelworks' production determines the quality of domestically produced market items, which are made mainly of metal. Over 1,500 domestic and foreign enterprises purchase the combine's products.

### Barriers

Sales of products and services in 1985 will total 150 billion zlotys (of which 7 percent will be exported). For 3 years, export is declining, including export to the second payments area [capitalist countries]. This is the result of top-level decisions, for the production and export of metallurgical products is controlled centrally. The combine has the capacity and is prepared to greatly increase exports.

Supply and sales are governed to a large extent by official prices and central distribution. The Lenin Steelworks buys 80 percent of its supplies and sells 94 percent of its production at official prices. This includes 100 percent of its basic raw and other materials, and fuels and energy. Almost 100 percent of its sales, including export, are covered by central distribution.

Since 1982 official selling prices of metallurgical products have been subject to annual increases, but this does not fully compensate for the growth of prices of producer goods, hard coal, iron ore, manganese, zinc, tin,

electric energy, haulage by the Polish State Railroads and State Motor Transport, and the effects of systems changes. Under these conditions and with costs growing, it is not possible to improve profitability of metallurgical products. In 1982 the combine's net profit was 15.3 percent; in 1983, 11.6 percent; in 1984, 6.7 percent; and last year, 7.5 percent. But during this period production rose 14 percent and costs dropped by 8.3 billion zlotys. Likewise in 1986 selling prices, compared with costs of producer goods, will make it possible, in the best case, to maintain profitability at the present level. This is not in accord with the provisions of Council of Ministers Resolution No 71/84 on the modernization of metallurgy, which in paragraph 6 advises the Minister of Price Affairs to improve profits in this industry in order to finance expansion and modernization.

During the past 4 years of reform, the combine made considerable progress in increasing the production of scarce metallurgical products and in improving management efficiency, as shown by savings in materials, anti-import measures, and a large growth in labor productivity. Despite these unquestioned achievements, the Lenin Steelworks is now facing serious barriers which are making current operation difficult and affecting a further increase in production. This is especially bad in view of the tasks set for the years 1986-1990. These barriers are:

- the poor condition of capital assets, which require immediate modernization,
- personnel vacancies in critical work positions, due to the low appeal of work in a steelworks, and
- failure to adapt certain principles and parameters of economic reform to the peculiar conditions of iron and steelmaking, which results in lack of money for modernization purposes and for the workforces.

What are the possibilities that the combine will fulfill its 5-year tasks taking into account the three barriers in the growth of production?

Assuming that the following will occur during 1986-1990: production of basic products will grow 8 to 20 percent, the value of sales (in comparable prices) will increase 13 percent, labor productivity will increase 7 percent, and 3 billion zlotys will be saved each year through economy measures, and despite: maintenance of only the present standard of social benefits, a growth of wages and salaries at a rate which does not require payment of taxes on above-norm wages and salaries, implementation of modernization, environmental protection and housing construction programs, on which production and efficiency depends--there will be a shortfall of 60 billion zlotys. This approximates the essential growth of outlays for modernization, pollution control and housing construction. And if these programs are not implemented, it will not be possible to achieve the envisaged growth of production which is so indispensable.

Financial outlays for the implementation of the above-mentioned programs will amount to 90 billion zlotys, and the combine has scarcely 30 billion zlotys for depreciation during the 5-year period. This is due to the high depreciation of capital assets, amounting to 57 percent, which includes 82 percent for machinery and equipment.

## Institutional Requirements

Only still-undepreciated assets require depreciation, although the old, already-depreciated assets must be regenerated, and above all, modernized. Detailed figures show that at the present price ratios and under the present rules, it will not be possible to add money to the expansion fund out of profit for division, even under the previously cited assumptions of production growth and efficiency improvement.

Therefore, the first conclusion that occurs is the need to depreciate all of the production-involved fixed assets. The combine's economic program for 1986 accepted this principle experimentally. In such case and with an annual reduction of the value of assets, depreciation during the 5 years would grow to approximately 80 billion zlotys, which would cover investment outlays for modernization and pollution control. The secondary effect of this operation will be a relative increase in costs and a reduction in profits on an average from 9.1 billion zlotys yearly in the 5-year period to zero.

To ensure that indispensable welfare and housing needs and shortages in the development fund are financed out of profits, the original profitability of the combine must be restored by shifting some of the accumulation from the processing industries, which are the main purchasers of metallurgical products and have high accumulations, to the metallurgical industry. This can be done by raising producer prices (not retail prices) on metallurgical products or by redistributing the accumulation in other ways.

But these moves will not protect the Lenin Steelworks modernization program from the standpoint of contracting. It will be necessary, therefore, to again establish a multisector capital-projects contracting enterprise whose only statutory task is the implementation of this program and whose parent organ will be the Minister of Metallurgy and Machine Industry. It is suggested that the tasks performed by this enterprise within the framework of Council of Ministers Resolution 71/84 be covered by government contracts.

The provisions of the combine's economic measures discussed thus far can only remove one of the barriers in the growth of production, i.e., the barrier of the technical condition of the assets. But another barrier must be removed at the same time, i.e., the problem of filling the vacancies in the workforce and ensuring workplace stability.

One of the indispensable conditions for doing so is to bring wages in iron and steelmaking to the level which would restore the traditional relationship of steel-mill wages to mining wages, without at the same time burdening the profit for division resulting from this by a tax on an above-norm growth in wages and salaries. Another way of achieving employment stability, particularly among young workers, is to provide them with their own housing sooner than would be possible under other conditions. But with 6,000 people waiting, this would require large financial outlays from the division of profit for plant housing construction and the ability to obtain bank credits for this purpose.

More housing construction will increase the demand for money out of profits for division which, despite the assumption of a large improvement in efficiency, with official prices and state control in effect, and the current financial system, will not be sufficient to meet this demand. We propose, therefore, that income tax on profits of metallurgical enterprises be reduced and that the money from the profit, allocated for plant housing construction, be exempt from income tax.

Finally, two very important matters.

First, the steady growth of the national economy's requirements for metallurgical products and the inability to meet these requirements means that each year, despite the combine's position, the share of production intended for profitable export shrinks. The consequence of this is a diminishing amount of foreign exchange remaining in the hands of the enterprise as part of the retained hard-currency earnings allowances.

Second, in a situation in which extensive repairs must be made and modernization projects are proposed, metallurgical enterprises must retain for themselves large amounts of engineering materials, assemblies and spare parts, most of which are in short supply. If these coproduction measures are to be more realistic, the portion of generated production remaining in the hands of the enterprise must be increased from 0.5 to 1.0 percent, and the modernization needs of metallurgy must be taken into account in the central distribution of machines and equipment.

These conclusions may give the impression that privileged conditions are being created for metallurgy. But in light of the conditions under which the combine is operating, these are only minimal, indispensable preconditions for the accomplishment of economic tasks during 1986-1990. We understand that some of the work being done on the financial system by the upper levels is going in the direction that we have proposed.

#### Self-Financing System Shortcomings Probed

Warsaw ZYCIE GOSPODARCZE in Polish No 3, 19 Jan 86 pp 8-9

[Article by Tadeusz Smuga and Jozef Sobota: "A Look From the Outside"]

[Excerpts] One of the main goals of economic reform was to create conditions, on the one hand, and to economically force self-financing, on the other hand. This goal was to be achieved principally through changes in the economic and financial system. Observations of economic practice, including studies conducted by the Institute of the National Economy (INE), show that the self-financing system is not fully operating (organizational subsidies, a broad range of institutional allowances, an individualized and bidding system of noninstitutional allowances). Of the enterprises we studied, the problem is particularly acute in the Lenin Steelworks.

#### Accounts

In answering the question as to the financial possibilities generated by the economic and financial system of economic reform, we first attempted to determine what the financial situation of the Steelworks would be if the institutional rules in effect had been consistently applied in general practice. In order to do this, some figures were compiled, which are shown in Table 1.



An examination of them suggests that the Lenin Steelworks in just the first 2 years of reform achieved a profit for division which allows it--ignoring the degree to which needs are met--to make allowances to the development fund and the employee funds (adding to the welfare and housing fund and creating a prize fund).

The situation since 1984, in which profits, after computation of the income tax and allowances for the reserve fund, were insufficient to cover debits to the Vocational Activization Fund (VAF), and the allowances to the development fund and the employee funds, has been much different. The size of the profits shortfall--taking into account the computed income tax, the allowance for the reserve fund and the VAF debit, in 1984 amounted to 7 billion zlotys at a profit of 5.6 billion zlotys. In 1985 the profits shortfall was 11.5 billion zlotys at a profit of 10.1 billion zlotys. This is the consequence of the operation of two elements, namely the reform program as applied in the Steelworks and the policy conducted by the enterprise.

On the above-shown hypothetical representation of the division of the Steelworks' profits figures we have, of course, superimposed the division that was made. It was made as it was because the enterprise obtained individual and discretionary allowances granted as a result of decisions made by the central authorities in response to applications made by the combine.

The data shown in Table 2 indicate a diametrical change in the enterprise's financial situation regarding a possible increase in wages and salaries, fulfillment of obligations to the state treasury, and creation of its own funds (development and employee). This pertains to the entire period of the enterprise's operations under economic reform during 1982-1985.

How, then, can the development needs, which appear to be fully justified in view of the gradual disinvestment of fixed assets (especially machines and equipment, which by the end of 1985 will be depreciated approximately 80 percent) be reconciled with the wage and welfare needs of the workforce?

## Conclusions

On thing seems certain: despite overvaluation of production assets and preferences in division of depreciation (90 percent of the depreciation remains in the enterprise), these measures in no way satisfy needs. The application of half-measures in the form of a high share of repairs in the combine's own cost of sales does not solve the problem, and at the most, makes it possible to maintain the production apparatus in some kind of working order.

The share of repairs in prime sales costs during 1982-1985 was approximately 21 to 23 percent. In this situation, further modernization is no longer a matter within the purview of the enterprise alone and becomes a problem which the central authorities must solve, in view of the importance of this Steelworks to the entire national economy. This solution may take two forms: either administrative decisions, or decisions which change the functioning system in such a way that conditions exist under which the Steelworks is able to accumulate the money indispensable for further development (on the unspoken assumption that the economy is able to ensure the material goods necessary to achieve this goal).



Table 1. Profits and How They Were Divided in the Lenin Iron and Steel Works During 1982-1985 Under the Economic Reform Program (Current Prices)

Item	1979	1980	1981	1982	1983	1984	1985 p.w.
	in thousands of zlotys						
(1) Wynik finansowy (zysk)	3 987 586	3 462 113	— 688 308	11 358 787	9 493 284	5 604 431	10 100 000
(2) Podatek dochodowy*	1 797 740	1 476 971	1 191 881	8 188 306	5 615 000	3 948 000	7 430 000
(3) Zysk do podziału	—	—	—	3 170 481	3 878 284	1 656 431	2 670 000
(4) Odpis na fundusz rezerwowy	—	—	—	317 052	408 397	171 000	270 000
(5) Obciążenie PFAZ (naliczone)	—	—	—	1 650 007	2 516 000	8 352 000	13 922 000
(6) Zysk do podziału na cele rozwojowe i fundusze załogi	—	—	—	1 203 422	953 887	— 6 866 569	— 11 522 000

\* During 1979-1981 - portion of accumulation paid into state budget.

Table 2. Profits and How They Were Finally Divided During 1982-1985 Taking All Individual Allowances Into Account

Item	1982	1983	1984	1985 p.w.
	in thousands of zlotys			
(1) Wynik finansowy (zysk)	11 358 787	9 493 284	5 604 431	10 100 000
(2) Podatek dochodowy	8 188 306	5 214 000	2 231 000	3 035 000
(3) Zysk do podziału	3 170 481	4 279 284	3 373 431	7 065 000
(4) Odpis na fundusz rezerwowy	317 052	408 397	171 000	270 000
(5) Obciążenia PFAZ	850 000	1 307 000	1 300 000	1 534 000
(6) Zysk do podziału na cele rozwojowe i fundusze załogi	2 003 429	2 563 887	1 902 431	4 085 000
(7) Relacja zysku pozostającego w HIL do wyniku finansowego (w proc.)	17,6	27,0	33,9	44,0
(8) Udział odpisów na fundusz rozwoju w zysku do podziału pozostającego w HIL (w proc.)	71,0	76,5	78,2	52,1

Key to Tables 1 and 2:

1. Profit
2. Income tax
3. Profit for division
4. Allowance for reserve fund
5. Debit to Vocational Activization Fund (computed)
6. Profit to be divided between fund for development purposes and employee funds
7. Ratio of profit remaining in Lenin Works to total profit earned (in percent)
8. Share of allowances for development fund in profit for division remaining in Lenin Works (in percent)

We believe that the system of reform thus far, without regard to an assessment of the actions of the enterprise's management (wage increases beyond its financial capabilities), does not create the conditions in which the Steelworks can earn the money necessary to meet basic developmental and wage needs. What is more, this system tends more to make the enterprise apply for preferences and allowances than to make it improve management efficiency. The benefits that flow from both these sources are not comparable.

For all practical purposes, the scale of the materials savings is not sufficient to ensure that enough money will be available to alleviate the financial difficulties. Furthermore, this is impossible for technological reasons. For example, if it were possible to obtain savings in materials on the order of 5 percent, then profit would increase by 3 billion zlotys, of which about 1 billion would remain in the enterprise, while the income tax relief would be on the order of 4.3 billion zlotys.

A comparative analysis of actual prime costs, conducted for elected Steelworks products, and similar costs for the association, indicate that the costs borne by the Steelworks are lower than the costs borne by the associated steel mills. Thus the argument that wage costs are an excessive burden on prime costs is false. Their share on costs over 4 years is constant and amounts to approximately 9 percent. In the light of the above, it must be concluded that the deficiencies lie primarily in the system of prices, i.e., the decided predominance of official prices in sales (95 percent), which determine, in advance, the low profitability (5.2 percent in 1984, 7.5 percent in 1985).

For comparison, we can say that profitability for products with official prices in the association in 1984 was 3 percent, and 4.6 percent during the first six months of 1985, at an average profitability for the association of 10.84 percent for the first half of 1985. Therefore, the central level authorities should be aware that when profits are low, the enterprise, wanting to ensure itself funds, will first of all apply for various types of relief.

In conclusion we want to address ourselves to a problem which, from the standpoint of the future, seems to be most important and which we ignored in analyzing the Lenin Steelworks financial situation, i.e., are the amounts and types of products produced optimal from the standpoint of the benefits which flow to the enterprise as a result. We silently accepted the fact that this range, described by a commodities turnover organization (CENTROSTAL), is indispensable in view of the needs of the economy. All future thinking, considering the future of metallurgy, should include wide-scale measures to reduce steel-intensiveness and derivative metallurgical products in our economy. Otherwise we will always encounter the argument that in order to meet the needs of the economy, further (expanded) development of metallurgy is indispensable, which will be justified by the demands of the metallurgical industry enterprises to the central-level authorities.

#### Economists Join Wage/Price Debate

Warsaw ZYCIE GOSPODARCZE in Polish No 3, 19 Jan 86 p 9

[Article by Tomasz Jezioranski: "... And From the Side"]

[Excerpts] Late last year a seminar was held at the Institute of the National Economy (INE) on "The Economic Situation and the Operations of the Lenin Iron and Steel Works Under Economic Reform." Two papers were discussed: A management paper and a paper written by two young employees of a plant

directed by Prof Urszula Wojciechowska, who was also the guiding force of the entire undertaking. A full complement of the combine's directorship also took part in the discussion, as well as the chairman of the Workers Council, a group of institute employees, and a group of guest-economists headed by Prof Czeslaw Bobrowski.

### Wages

Of the several subjects discussed at the seminar, the problem of wages, to which the authors of the joint paper gave the most attention, was given priority. The data contained in Table 1 in a very clear way confirms the argument that it was the way in which wages were dealt with which directly pushed the Steelworks into a real deficit. But the position that Tadeusz Smuga and Jozef Sobota took on this issue was susceptible to various interpretations. In one place they wrote that the Lenin Steelworks' financial situation "is the consequence of the operation of two elements, namely the reform program as applied and the policy conducted by the enterprise," but towards the end of the article they undermine the argument that wage costs are an excessive burden on prime costs. "Their share in costs over 4 years is constant and amounts to 9 percent," they assert and conclude that the deficiencies lie primarily in the system of prices.

On the other hand, in the Steelworks' paper in the part dealing with wages the greatest emphasis is placed on the enormous, approximately 20 percent, loss of employees due to the lack of appeal of work in a steel mill. Such information is in itself shocking even if we take into account that this outflow took place over a period of almost 4 years (1981 and half of 1984). During this same time (precisely, during 1981-1985) labor productivity (measured in comparable prices) grew almost 23 percent, which means that the personnel loss was, to a considerable degree, evened out.

But based on the papers presented, it cannot be said what was responsible for this rise in labor productivity--improvement in engineering facilities, organizational changes, longer working time, or other reasons. And this has a certain importance in assessing not just the fact, but the size of wage growth.

### Prices

Thus we are at prices. The position of the writers of the papers, from the Steelworks and the INE, were basically in agreement on this matter. The Steelworks' low profits were caused by defective official prices. Speaking of defectiveness, each side probably had something else in mind.

To the question why the profits picture of many other steelworks is better, managing director E. Pustowka replied that this is so because the structure of these prices is not good for his works. The INE people, however, report that although in 1984 the profitability of official prices was 3 percent in the association, in the Lenin Steelworks it was 5.2 percent, and for the first half of 1985 the association's profits were 4.6 percent, while in the Lenin Steelworks they were 7.5 percent. And admittedly in the structure of the association's production the share of contractual prices is somewhat higher than in the Lenin Steelworks, but after all the comparison cited refers to official prices. The Lenin Steelworks is complaining about these prices

because they prevail throughout the entire metallurgical industry.

It seems that the matter requires more thorough examination. It may very well be that costs are the real culprit, for as we know official prices are based on average costs in subbranches of the same or similar products.

#### The Alternative?

The Steelworks proposes an institutional maneuver which consists of partially shifting the accumulation from the processing industry, which is the main consumer of metallurgical products, to metallurgy. Prof Wojciechowska supported this idea, saying that "there is no reason for the Lenin Steelworks to suffer for lack of money when POLMOS is floating in it" (allowance must be made for poetic license in this comparison and it should not be taken literally).

Next, Asst Prof T. Mrzyglod opted for a change in the rate of the dollar, since it now is profitable for 60 percent of export, while in accordance with the assumptions of reform it is supposed to be 85 percent. The consequence of a change in the rate would be a change in official prices in metallurgy, not an automatic change but a pro-efficiency change in the structural sense. This would be based on a selective increase in prices: products that are technically obsolete would be raised to a transaction-price level, and products that are modern would be raised to a much higher level.

The position of Prof W. Herer, it seems, was a little closer. He stubbornly insisted that a change be made in transaction prices for they are the prices that are valid in all calculations. Prof Tadeusz Kierczynski also favored a price rescue, noting that reform was supposed to make all prices profitable. For anyone familiar with the 5-year discussions in the Commission for Economic Reform, it was very clear at this moment that the leading anti-inflationary authority, Dr S. Jedrychowski, would have to make a rejoinder.

And indeed he did. He denied the assertion that reform was to ensure that all prices would be profitable; it was only supposed to prop up prices of basic raw and other materials on the world markets, and there is a difference. If we want to widen the inflationary gap, Dr Jedrychowski continued, we must reject the pipedream that it will be possible to modernize the Lenin Steelworks (and all of metallurgy) through a change in prices. The reasoning of the Lenin Steelworks' representatives, apparent in the institutional proposals that are being made, is precisely along the lines of the narrowly interpreted principle of self-financing, although the main point is crediting, which is embodied in the self-financing principle, interpreted broadly.

The direction of thinking was expanded briefly, but before I mention it I will add that very calmly Prof Stanislaw Polaczek poured a little cold water on the heads of those advocating a shift of part of the accumulation from the processing industry to the metallurgical industry. He mentioned that in view of the energy input in metallurgy, a part of the accumulation from metallurgy should be consistently shifted to mining, because 70 percent of this input is coal, either in pure form or in the form of coke, and finally, electrical energy.

This comment was not taken up, but it seemed to shut off discussion on this point, for Professor Polaczek had shown that the idea of shifting accumulation did not descend from reform, but from a totally different system. Consistent application of this principle (and we know that if someone begins this procedure it will quickly become general practice) means nothing else than distribution of the accumulation through the budget, with all of the consequences of this for efficiency.

As far as credits are concerned, in addition to Jedrychowski, Dr Joanna Kotowicz came out in favor of them. But Professor Wojciechowska was against them. The real opposition to credits was preceded by the professor's dramatic question: "Why, really, does not the Lenin Steelworks take advantage of credits?"--to which the entire hall as one chorus replied: "Because the bank knows that it will never get the money back." But in her own answer to the question she took a broader look at the matter, expressing the belief that the main reason that the investment credit instrument has gone into decay is that there is no mechanism which would limit the issuance of credits. The credit plan, she added in her rejoinder to the voices from the hall, is not such a mechanism because issuance is not based on anything objective. That is why I am in favor of assistance for the Lenin Steelworks using money from the budget (by shifting accumulation).

And that is how the alternative, perhaps a little false, was developed: Do we help the steelworks in its current problems, particularly modernization, through official or unofficial subsidies, or through credits, about which there is almost no certainty that they will ever be repaid (the system requires that credits must be repaid out of profits)? At first glance this is a pessimistic alternative, especially in the context of the goals which reform was to achieve.

This alternative is the more cheerless because the pioneering attempt of the INE at vivisection left a lot of leaway for the decisionmakers to examine the efficiency of the Lenin Steelworks very thoroughly. Which does not change the fact that thanks to the Institute and the Steelworks an honest examination was begun, which could lead to honest conclusions. This is generally optimistic, even if the concrete conclusions were not.

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ECONOMY

ROMANIA

NEED TO MAKE AUTOS COMPETITIVE ON EXPORT MARKET

Bucharest REVISTA ECONOMICA in Romanian No 50, 13 Dec 85 pp 7-8

[Article by Lucia Mirea: "Bringing Production and Exports up to International Levels"]

[Excerpt] The automotive industry is one of the most representative subbranches of the machine-building industry and makes up over 10 percent of the industrial production of this branch. Having been continuously developed and diversified during the socialist period, the automotive industry currently presents the attributes of a traditional industry and has the technical material and the technical and technological maturity required to become a genuine representative of our national technology in international markets.

The program on raising the technical and qualitative level of products, reducing the consumption of raw materials, fuel, and energy, and better utilizing raw materials features the following basic technical, technological, and organizational objectives for the respective industrial central this year and in the coming 5-year plan: increasing the volume of exports (particularly in traditional areas), and gradually increasing returns per ton of products.

Manufacturer Name Prestige

Initially developed in order to meet the requirements of the national economy, the Romanian industry of utility vehicles has continuously increased its production; by 1984 it was manufacturing 20,716 vehicles (including buses, trucks, tractors, and dump trucks), which was comparable with the output of the largest West German firms: Daimler Benz, MAN, and Iveco, which in the same year produced 19,675 utility vehicles of over 16 tons each.

As a result of this rapid production development, aside from meeting almost all domestic demands for such vehicles, the industry of utility vehicles succeeded in building up a diversified export list. Thus, Romania currently exports to many countries of the world: it sells trucks to over 50 countries, and buses, trolleybuses, utility vehicles, etc., to 37 countries.

The utility vehicle enterprises of the Brasov industrial automotive central offer a very comprehensive choice of exports to foreign partners, which includes:



--14 types of trucks, with a capacity load of 5 to 30 tons and with 135-360 HP diesel engines;

--eight types of trailer tractors with capacity loads of up to 40 tons;

--nine types of dump trucks with capacity loads of up to 100 tons;

--45 types of special structures for various purposes, such as: tankers for drinking liquids, oil, and chemicals; refrigeration and isothermal freight cars for perishable foodstuffs; various models of fire engines; mobile workshops equipped with technical assistance gear; multi-purpose trucks; mobile telescopic ladders, etc;

--eight types of bus-trolleybus combinations;

--33 types of utility vehicles;

--five types of trailer platforms and semi automatic tralers;

--building equipment such as: front loaders, tire and caterpillar bulldozers with 550 and 600 HP engines, and various automotive components, parts, and subassemblies.

By expanding the export offer by over 900 technical products, manufactured both on the basis of original concepts and of licence or production sharing with firms of international reputé, such as MAN and Bosch of the FRG, Savien of France, RABA of Hungary, and others, the Romanian exporters of utility vehicles can meet international demands with products tested under the most varied climatic and terrain conditions. In order to ensure that the Romanian vehicles can be adapted to various utilization conditions, the manufacturing enterprises, together with the specialized foreign trade enterprise (Autoexportimport) and with the relevant research center (the Brasov Center of Automotive Scientific Research and Technical Engineering--CCSITA) organize technological tests and demonstrations in the country of the foreign partners, at the same time testing and standardizing products at specialized institutes of world reputé.

The computerized programs worked out and utilized by CIAT [Central of the Motor Vehicle and Transportation Industry] and the Brasov CCSITA permit testing by simulating the technical-dynamic performances of the vehicles designed and built, and simulating the vehicle's progress by determining the percentage of utilization of the average and maximum speed steps on a given route. For the main auto components and parts, i.e. engine, transmission, brake system, and suspension, the institutes utilize the programs of the diagrams indicated for engines, clutch forces, wear and tear on the spindle of the crankshaft bearing, and the tension borne by any of its sections; calculation of the crankshaft resistance and of inherent and forced torsional vibrations in relation with the longitudinal vibrations of the crankshaft; harmonic analysis of the engine moment, the pressure force between cam and push rod, the mode of vibration of the vehicle transmission, the engine-converter interaction, the geometric and resistance calculation of the gears, the design of the conical groups of the engine bridges, the calculus of the

planetary reducers [reductoare planetare], the resistance of the gearbox shafts, and the durability of the ball bearings. For the brake system, a program has been worked out to determine the braking characteristics of the vehicles, while for the suspension, a computer program calculates the resistance and generation of the profile of the parabolic arcs.

Similarly, general resistance calculations are utilized for industrial vehicles, in the manner of the calculation of a statically determined or undetermined beam under bending (chassis, shafts, etc.) and of the calculation of deformation tensions on the geometrically complex parts of a vehicle (auto chassis, bucket, etc.).

Also, in countries to which we export large numbers of utility vehicles Romania has established spare parts stores (China, Hungary, and Yugoslavia), commercial associations (Burundi and Zaire), commercial agencies, and service outlets.

#### Continuously Updating the Parameters

However, these products and notable achievements of our utility vehicle industry are meeting with a world market in crisis. The relevant international market has considerably shrunk, both as a consequence of acutely increased competitiveness, and of the developing countries' national policy of building up their own auto assembly industry, by facilitating the establishment of assembly lines and factories on their territory. In view of these international trends, the large manufacturers are adjusting to the changes occurring in the economic situation of the various countries, and are taking measures to adapt to the demands of those markets. Thus, exports of subassemblies and components in various degrees of complexity (CKD--completely knocked down, and SKD--semiknocked down) have greatly increased. Similarly, the major producers are rapidly modifying the range and types of vehicles they manufacture, by increasingly utilizing interchangeable elements; they rapidly build and offer vehicle with various traction formulas that can be utilized in the most varied conditions.

Consequently, in order to penetrate and maintain markets, the Romanian manufacturers must continuously improve their performance in several directions, such as:

- systematically and exhaustively canvass foreign markets with a view to identifying demand trends and the trends of the large manufacturers;
- expand and supplement the range of engine power of the vehicles built, in order to satisfy a broader range of demands;
- build a larger number of types and construction versions (from the viewpoint of drive, chassis, body, etc.) so as to be able to promptly meet multiple customer requirements;



--raise the technical and qualitative level of the vehicles, on the basis of a comparative analysis of the technical-functional parameters of subassemblies, components, and parts of similar foreign products;

--improve the finish and comfort of export vehicles by modernizing cabs, and providing radios, air conditioning, parabolic springs, etc.;

--develop manufacturing branches within each power class, with a view to establishing families of specialized vehicles for various utilizations.

Product competitiveness is conditioned by manufacturing flexibility, internal efficiency, and labor productivity in the production process. As is known, when labor productivity in a given area of the Romanian economy is higher than the international average, the comparative (economic) advantage obtained through participation in the international economic flow of the respective area will favor our country. Consequently, in order to increase the economic efficiency of production and labor productivity, measures must be taken to:

--fully and efficiently utilize all available production capacities; utilize materials of the size closest to the size of the finished part; mechanize the loading and unloading of raw materials and finished products; organize labor and production by improving personnel norms and regulations; reexamine labor norms and improving them by increasing the level of mechanization and automation in accordance with the technical equipment available at the producing enterprises.

At the same time, in order to achieve a flexible production that can be rapidly adapted to market demands, consistent efforts must be made to improve, update, and modernize production technologies, particularly by providing the enterprises with modern and highly productive equipment such as:

--specialized machine-tools and digital control processing centers;

--industrial robots;

--automated and semiautomated processing lines;

--active control apparatus;

--precision forging and stamping equipment;

--thermal treatment lines in controlled environments.

Out of the many concerns with which the builders of utility vehicles must deal in order to raise the technical-functional parameters of their products in keeping with international market trends, we note four basic ones: reducing energy consumption by, among other things, reducing motion resistance; environmental protection, and improved control systems; increasing safety; improving the ratio between the load capacity and the overall weight of the vehicles. These are objectives to which the Romanian manufacturers are devoting intensive research, in order to redesign and modernize their products. The improvements pursued in the areas of increased lifting power,

tare index, availability index, normal life span, etc., will lead to the redesigning and updating of over 80 percent of the current basic range of utility vehicles. New and more resistant materials will be used for the main components, the utilization of substitutes with lower specific weight will be expanded, and so forth.

Brazil occupies the first place among the countries with the greatest number of lines for foreign assembly of service vehicles and, on this basis, has become one of the principal world producers of service vehicles.

Romania is also involved in this form of export. For example, for 5 years, CKD and SKD units have been delivered from Jinan in the Peoples Republic of China for the Roman truck assembly line, with a capacity of 6,000 vehicles annually. In 1984, the volume of deliveries of components was 19 million rubles and this figure is expected to increase as a result of long-term contracts with partners in CEMA and in the developed industrial countries.

Roman export of assembly lines (incorporating the license and know-how and facilitating the export of automotive components for assembly is one of the priority areas of attention with a view to increasing the volume of exports in the automotive field in the future.

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MILITARY

POLAND

## ECONOMIC MANAGEMENT OF ARMED FORCES

### Deputy Quartermaster Comments

Warsaw ZOLNIERZ WOLNOSCI in Polish 4-5 Jan 86 p 3

[Interview with Chief of Staff, Deputy Chief Quartermaster of the Armed Forces, Gen Div Stanislaw Fryn, by Col Waldemar Makowiecki of ZOLNIERZ WOLNOSCI: "Practical School of Economics"; date and place not specified]

[Text] [Question] The approaching 13th National Conference for Efficient Management of the Armed Forces, just as the previous ones, requires that we make an accounting of the tasks we have been directed to perform as a result of the party and government decisions on efficient management and the decisions made at the previous conference. What were the assumptions in this regard?

[Answer] Let us begin by recalling the substantive fundamentals of efficient management in the Armed Forces of the Polish People's Republic. That is, the driving forces of efficient management and measures which permit us to achieve our envisaged goals. The fact of the matter is that in efficient management there can be no random action. On the contrary, a clear, very legible and controllable system must function.

Such a system has existed in the Armed Forces since the mid-1970's. It includes all interested party, political, social and service elements and methods and techniques of operation. But I want to say that this system has been modified recently. It has been adapted to the socioeconomic conditions of the 1980's.

The changes were initiated by the resolutions of the Ninth Extraordinary PZPR Party Congress and the subsequent plenary meetings of the Central Committee. These resolutions formed the basis for the development, within the quartermaster services, of a very ambitious program which took into account the need to adapt the system by which the troops were supplied and serviced to the crisis conditions and the struggle for economic stability.

Another basic document was the 3-year government program for efficient management and anti-inflationary measures for the years 1983-1985. The tasks which ensued from it had a predominating influence on the quality and thrust

of the efficient-management and anti-inflationary programs being developed by the quartermaster services.

The already traditional system of national efficient-management conferences in the armed forces is an extremely important driving force in efficient management. The importance of these conferences cannot be linked or identified only with economic results. This is important, but not the most important. The national conference for efficient management is a management forum of the highest rank, at which all of the economic operations of the armed forces are evaluated and the economic policies of the national defense ministry and the primary tasks for a given period are delineated. The principle of efficient management, as the "principle of principles," is the instrument for controlling economic policy and management processes during implementation.

These and many other factors and determinants served to intensify service and party-politics activities. They were the basis for the preparation, at particular levels of management, of programs and schedules whose consistent implementation brought definite results.

[Question] May we ask you, Comrade General, to acquaint our readers with the positive factors, as well as those factors which had a negative impact on the results achieved.

[Answer] Briefly about the results achieved. First of all, I want to say that thanks to efficient management the required standard for supplying and servicing the military was achieved, as was the required level of capability and combat readiness. The measurable results of efficient management helped to reach this goal. These results, during the past 5-year period, are estimated at 14.6 billion zlotys (for comparison, these results amounted to 6.2 billion zlotys during 1980-1982).

This is also a meaningful contribution to alleviating the country's economic difficulties from the standpoint of putting a lesser burden on the marketplace. Let us take liquid and solid fuels, for example. In the armed forces for many years now a correct policy of capital investments and repair and modernization of heating systems has been conducted (the building of central boiler-houses in place of dispersed, local boiler-houses, improved operation of boilers, elimination of energy-intensive equipment, etc.). Unit standards of energy, fuel and liquid fuels consumption are constantly being checked and conditions under which they are stored are being improved. A system of limiting purchases and consumption of liquid fuels is functioning well, as is a system of controlling and examining their consumption, combined with a bonus-incentive plan for drivers and employees of technical and petroleum, oil and lubricant services for fuel savings.

A system of centralized garrison and between-garrisons haulage has been expanded with success since 1978. It combines the supply requirements of several units and uses garrison transport means to fill these requirements.

As a result of these measures, during 1981-1985 424,300 tons of liquid fuels were saved.

Numerous economy measures were also applied to solid fuels and electrical energy. These include replacement of 560 wornout and small-capacity central-heating boilers; replacement of 52,000 running meters of heat distribution network; automation of heat distribution systems in military buildings with a total space of 610,000 cubic meters; and rebuilding of 510 boiler-houses with a total thermal capacity of 420 GJ/h.

As a result of these endeavors, over 278,000 tons of solid fuels and 97 million kilowatt-hours of electrical energy was saved. During 1981-1985 economies of raw energy materials resulted in savings of 4.3 billion zlotys.

The severe raw-materials shortage also makes it necessary to manage secondary materials properly. That is why the Ministry of National Defense has for a long time now been delivering secondary raw materials for the national economy in amounts greater than those set in the National Socioeconomic Plan. Thus, during 1981-1985 over 172,000 tons of secondary raw materials were supplied, greatly exceeding the initial tasks. Amounts in excess of quotas were as follows: scrap steel, 12.1 percent; scrap iron, 91.9 percent; and nonferrous scrap, 62.6 percent.

For the raw materials supplied to the national economy during the current 5-year plan the Ministry of National Defense received over 2 billion zlotys.

[Question] You mentioned the measurable results, Comrade General. What are the unmeasurable results?

[Answer] First, the establishment of principles of efficient management and, in connection with this, the dissemination of principles of good work among the cadre and soldiers who, after completing their military service, will carry the habit of thrift and good work to other areas of the national economy. Second, the systematically conducted education in economics, combined with specialized knowledge and expanded general knowledge.

We must be aware of the fact that the principle of efficient management must be observed on every job. Thus today, after all the simple reserves are exhausted we must put the complex reserves in place, and this is a difficult matter. In this case not only zeal and willingness are needed, but also knowledge, including specialized knowledge.

In addition to the unquestioned achievements in the efficient-management system, there are still the unutilized reserves and certain shortcomings. We can never say that at a given stage the efficient-management system is perfect. We will always strive to improve it. This is a constant and long-range process.

At present we should put the complex reserves into wider use. By making changes in the system, we should increase labor productivity and make better use of our production and service potential, and particularly worktime, production area, machinery and equipment.

We have eliminated certain shortcomings in the system thanks to better solutions which will provide better feedback between efficient-management

plans and all quartermaster-service operations, and most of all, will increase planning accuracy. The effects of efficient planning have been diminished by various types of losses caused mainly by lack of supervision, improper performance of duties, carelessness, and accidents, including fires.

[Question] The shortcomings which appear here and there do not completely eclipse the positive image. But what can be done to improve things even more?

[Answer] Most briefly, it comes down to such essential requisites of efficient management as productivity and frugality. This means that we must proceed so as to achieve the highest results, or perform given tasks, with the lowest possible amounts of financial outlays, without reducing the quality of the tasks and endeavors.

We are trying to manage more efficiently and eliminate the reasons for losses and damage occurring in the military which diminish the effects of our work. We are doing this through closer collaboration with other departments of the Armed Forces and especially through closer collaboration with the party apparatus, the military police and the military prosecutor's office. We are doing everything we can to eliminate the negative aspects from the quartermaster services where they still exist, employing military, party and social measures.

We are, more and more, applying modern systems-type solutions which allow us to utilize complex reserves. A proven example in this area are the results achieved through the centralization of haulages of supplies, which in 1984 alone permitted a savings of 1,890 million zlotys.

Effective 1 January 1986 we instituted new planning and control systems on the management-detachment and tactical-unit level. These discipline the operations of the quartermaster services and require them to apply, to a greater degree, economic and financial instruments. They are applied also to the cost-effectiveness method of evaluating quartermaster-services operations. As conditions permit, we will gradually put this method into effect. It should bring further significant results.

Education and training in economics is an essential and reliable method which ensures metrological efficiency, meaning that efficiency measures are effective from the standpoint of knowledge possessed. Commitment, willingness and diligence alone are not enough to conduct efficient management, despite the fact that these are extremely important traits. In addition, keen knowledge and the ability to make use of it in solving all defense and economic problems, in accordance with the requirements and combat-readiness of the armed forces and the principles of efficient management, are needed. To achieve this goal, a knowledge of the principles and laws of political economics, efficient operation and the principles of functioning of the national economy are required, as called for by the job level and position.

That is why in the quartermaster services general education in economics is given to the cadres and civilian employees of the army. It takes into account the connection which exists between general education and economics education. It is aimed at a general understanding of the economics of defense, military

economics, and branch economics, including the quartermaster services in the context of economic reform.

Economics education is taught to all quartermaster units. The main problems concern reform in the national economy and the army, including methods- and materials-efficiency in achieving and maintaining the required level of combat readiness and capability in those areas for which the quartermaster services are responsible. Except that during leadership training of the quartermaster services cadre on the management-detachment, tactical-unit (equivalent), military-district and armed-forces-branch level, a great deal of attention is given to new systems-type solutions pertaining to planning of economic operations involving cost-effectiveness methods and supervision over these operations in the management detachments.

[Question] What benefits does society derive from efficient management in the military?

[Answer] First of all, we should strongly emphasize that due to efficient management the Ministry of National Defense produces its own (nonbudgetary) additional funds which are very useful in achieving the required combat capability and readiness of the Armed Forces. It also ensures that the required standard of supplies is maintained and that the living conditions in the military community are improved. In addition, through efficient management the army prepares high-grade specialists for work in the national economy, people with habits of thrift and good work.

It should also be emphasized that due to the development of its own military production and services, the armed forces to some degree supply themselves, thus partially relieving the marketplace of the additional burden. The dimensions of this production and services over the last 5 years, in terms of money, amount to approximately 117 billion zlotys. The greatest share is in production and assembly services (67.5 billion zlotys), production-training of railroad and highway units for the benefit of the national economy measured in terms of the cost-estimate value (22.5 billion zlotys), farm production (9.6 billion zlotys), baked-goods and delicatessen production (6.5 billion zlotys), and the Military Trade Center's contracting production (approximately 6 billion zlotys).

In conclusion, I would like to say that the main goal of the quartermaster services will be to continue to maintain the present standard of living, to supply and service the armed forces as heretofore, and to undertake such organizational and economic endeavors as will improve the quality and efficiency of management, and above all, contribute to ensuring the growth of the combat-readiness of the armed forces.

#### Deputy Defense Minister Comments

Warsaw ZOLNIERZ WOLNOSCI in Polish 6 Jan 86 p 3

[Interview with Gen of Arms Jozef Uzycki, chief of staff of the armed forces and deputy defense minister, by Commander Jan Jastrzebski: "The Army is a Good Manager"; date and place not specified]



[Text] [Question] Comrade General, the statement that the Polish Army in the public's awareness is not just a consumer of the goods generated by the national economy is probably not a revelation. The belief is spreading that the army is a good manager, that it makes good use of the money appropriated for defense, and that part of these socially indispensable outlays are returned to society in the form of so spectacular a bridge as the Syrena in Warsaw, or dozens of bridges throughout the country. And after all, that is only a small part of what the army gives the country. We should mention the roads, railroad tracks, thousands of skilled workers, results of research and designs by scientists in uniform...

[Answer] It is good that that is what society feels and believes. The money which the state appropriates for national defense produces what is most valuable of all--peace and security for the nation.

The amount of this appropriation, and we all know this, depends not just on the needs arising out of the military and political situation, but also on the capabilities of the national economy. The armed forces budget is based on needs and capabilities. We are all very familiar with the military and political situation: the military threat intensified by forces inimical to us compels our government to treat matters of defense on an exceptional basis. And at the same time, the capabilities of the national economy, which is contending with serious difficulties, are limited. The needs of the armed forces are examined by the Sejm and the government with extreme attention. Every effort is made to reconcile them harmoniously with the capabilities of the economy. We do not conceal anything. It was not so long ago, after all, that we published figures on defense expenditures. The army tries to be a good manager. It does a great deal to compensate society, at least in part, for the outlays made for defense, to produce benefits for the national economy through various organizational and technical measures, as for example, the one of which you spoke, Comrade Commander. That is exactly as it should be. After all, these actions take nothing away from our defense potential. They are good for it. They help to improve the army organizationally and technically. That is what we shall also do in the future. And we will continue to improve the efficiency of our military management, so as not to waste even one zloty of the money entrusted to us.

[Question] Final preparations are now being made for the 13th National Conference on Efficient Management of the Armed Forces. Much has been published recently in the mass media on the subject of measures to improve military management in the particular services and functional groups. But a comprehensive look at the problems to be brought up at the conference is possible, I think, only from the viewpoint of the General Staff.

[Answer] Indeed. In the General Staff, the basic planning and organization organ of the Ministry of National Defense, all of the areas of action and military life are focused as in a lens, to a specific extent, of course. It is precisely in the General Staff that planning work relating to the expansion of the armed forces is conducted; it is here that scientific, training, engineering, and economic endeavors are planned. All of these plans are appropriately weighed and coordinated so as to make use of the funds



available--to achieve, to the maximum degree, the primary goal: high combat readiness of the Army, both now and in the future.

The preparations for the 13th National Efficient-Management Conference, which will be held under the direction of the Minister of National Defense, are coinciding with the final phase of work on the plan for the development of the armed forces during the next 5 years. We have coordinated this plan closely with the provisions of the National Socioeconomic Plan and the anticipated national income. We already know that it will increase moderately, and that obviously, it will determine the share of defense expenditures in the national budget. It is these realities which will demand particular frugality in the use of such limited outlays. That is why initiative, creative ideas, and efficient operations in all areas of military life are so important. It is our civic duty to always stop and consider how the results of our actions can be increased with the outlays available.

And as far as articles on the subject of efficient management, which you spoke of, are concerned, we follow them closely, study them, and try to extract everything that is good and worthy of dissemination. They contain much about ideas which have already been implemented, solutions which have been verified, and results which have been obtained. But there is too little, in my opinion, criticism and searching. I think that the authors of these statements will submit many new proposals and creative ideas during the conference.

[Question] What goals have the organizers of this conference set for it?

[Answer] Briefly speaking, there are two primary goals. First, we want to take a careful look at the results achieved thus far and how the tasks assigned by the Minister of National Defense have been accomplished. A discussion at the conference, in a wide, professional group, should serve as a forum at which to exchange views and inspire greater efforts towards savings, so essential at this time. There should also be an element of education in economics. Also, during this conference, we want to honor those who have been the most thrifty, to show their accomplishments, to reward them for their work and efforts. Second, we intend to submit and jointly discuss the primary socioeconomic determinants which will immediately affect the development of the armed forces. Our discussions will be based on the resolutions of the National Party-Economic Conference and the 23rd Plenum of the PZPR Central Committee, the assumptions of the National Socioeconomic Plan, and the many accomplishments since the last conference due to implementation of an efficient-management system in the army. I believe that this will enable us to outline new, more effective, courses of action to improve efficiency and to open up and utilize the increasingly complex reserves in 1986 as well as during the entire 5-year period.

[Question] Can we today, even before the conference, Comrade General, persuade you to give us an assessment of the results of efficient management in the army thus far?

[Answer] You can. Many statistics are available, but dry statistics are not what is most important. All efficiency-improvement accomplishments can be traced to military activeness in the performance of tasks assigned to the

Ministry of National Defense, stemming from the resolutions of the Ninth Extraordinary PZPR Congress, the plenary meetings of the PZPR Central Committee, and the decisions of the government.

We have made good use of the time that has elapsed since the last conference. The assignments of the Minister of National Defense have been fully accomplished. We have achieved the results envisaged, and even gone significantly beyond that which had been envisaged. We could say a great deal about accomplishments and cite figures and facts. I will mention only a few.

We believe that the system of economic education in the military has been improved during the period just passed, and that the results of this education have made for thrifty management, better working and serving conditions for the cadre and the soldiers, proper attitudes and habits of efficient management. For many young people, the army has become not just a "school of life" but also a "school of efficient, economic thought and action." This has allowed us to cope with economic difficulties by ourselves, and with good results.

Another important problem: organization and leadership. Your newspaper promotes the slogan, "the winners are those who are better led," which underscores the importance of organization. To improve the organization means, among other things, to improve the organizational structures. We are doing this. In comparison with western armies, our armed forces are more economical from the standpoint of numbers of professional soldiers. Structural changes have already been made which have permitted us to use even some cadre reserves. We are improving work organization, simplifying procedures for settling service matters, and limiting the number of planning, recording and reporting documents to the indispensable minimum, using computers in so doing.

The training of troops and staff is also undergoing change. Improvements made in methods-organization, which have raised the quality of command and staff drills, and decisionmaking games conducted with the use of computers, have permitted us to make economies without reducing the fighting condition of the commands, staffs, and troops.

Technical modernization of armies is costly but essential. We are trying to schedule it properly, and conduct it smoothly. Where possible, we are modernizing equipment which we now have, increasing their combat qualities. An "army", if we can call it that, of efficiency experts, innovators and inventors are participating in this modernization. Over 80 percent of the designs submitted by them have been accepted for implementation, some of them in the national economy.

In investment policy we have taken the position that we build only that which is unavoidable, trying above all to make good use of existing facilities.

These accomplishments, of course, give satisfaction, but I believe that every good manager should look ahead more often than back. And we, too, should always look to the future.

[Question] That is exactly why, Comrade General, I would like to ask you to describe the most important problems which the 13th National Conference for Efficient Management of the Armed Forces will have to deal with.

[Answer] That is difficult... After all, the proposals arising out of the conference will be the result of broad discussion, the collective wisdom and experience of its participants.

I believe that thrift and efficient management, which is one of the most important factors in the country's future development, is regarded in the army as a duty, as a task of the highest priority, as stated in the resolution of the 23rd Plenum of the PZPR Central Committee which defines the party's tasks in the implementation of the National Annual Plan for 1986.

I always remember the words spoken by the first secretary of the PZPR Central Committee, General of the Army Wojciech Jaruzelski, that there is no area in our socioeconomic life in which more cannot be done, in which it would not be possible to do better.

This statement will be the guiding principle of our conference. After all, it should not only sum up the unquestioned achievements. It should, above all, encourage criticism in the military community. It should detect weaknesses, stimulate a search for newer, bold solutions, and consistent application of these solutions in military practice.

During the previous conference, the Minister of National Defense, General of Arms Florian Siwicki, called economical management our weapon in the struggle for full implementation of the plan for developing and modernizing the armed forces. We are making use of this weapon. The conference will help to improve it, to stimulate efficient management, to discover new reserves. After all, we have many experienced specialists, people who are wise and resourceful. Their quests should be encouraged by our interest, goodwill, and the assistance of commanders and chiefs, and party and social organizations.

#### Economic Institute Commander Comments

Warsaw ZOLNIERZ WOLNOSCI in Polish 7 Jan 86 p 3

[Interview with Col Marian Koch, commander of the Military Economic Institute (MEI), by Andrzej Medykowski; date and place not specified]

[Text] [Question] Efficient management--figures, indexes, reflecting billions of zlotys saved. Behind this are the ideas and efforts of concrete people. They do this not simply as a service obligation. How does it happen that they want to be thrifty? Where do such people come from?

[Answer] The essence of the matter lies in people's attitudes and motivation. In the army, higher-order factors decide, although material incentives are also important. The stimulation of results of training, efficient utilization of people and material resources, makes for awareness. In shaping this awareness, close cooperation between the party-political apparatus and the

technical and quartermaster services, who hold most of the military assets, plays a leading role.

The correct propagation of the essence of efficient management is very important; organizations and party echelons teach soldiers that they are jointly responsible for economical management, concern about armament, equipment and other military property.

[Question] That is, activities not dealing just with economics?

[Answer] We should look for answers to such questions in the sphere of ideology, morality and psychology, and we are doing this effectively in the army. Internalization of the principles of the political system, the desire to obtain collective and individual satisfaction, the satisfaction of creative ambition, prestige--all of these are enormously important for efficient management. Let us not forget that moral recognition, and not just material recognition, is important.

[Question] But good intentions alone are not enough. Sound knowledge is needed. Where can it be obtained?

[Answer] In the Economic Sciences Department (ESD) of the Military Political Academy (MPA)--the only center in the armed forces which grants master's degrees in economics, and in two areas: political and management, both in-residence and by correspondence. And not just master's, but also doctor's in economic sciences, for the needs of the higher officers schools also.

The activities of the Military Economic Institute (MES), of which we are an integral part, are closely connected with the activities of the Economic Sciences Department of MPA.

[Question] The Economic Sciences Department of MPA and the Military Economic Institute are one of those fortunate places where scientific research is conducted while cadre training is going on and there are all kinds of connections with practical operations. To what degree do efficient-management ideas originate here?

[Answer] Propagation of efficient management occurs on several planes. We have already mentioned schooling. Another plane is publishing. During 1983-1985 MEI employees published approximately 300 scientific reports in newspapers and periodicals, and also in the form of duplicated copies, textbooks and books. We make summaries of scientific research and prepare methodical reports, as for example, "Efficient Management in the Army--An Outline of Problems," or "Methodical Assumptions for the Preparation of Instructions on the Evaluation of Training Processes and Management in the Army on a Cost-Effectiveness Basis," which formed the basis for application of the ideas of efficient management in relation to concrete actions in the armed forces.

[Question] Economic sciences more and more strongly support management of the army, or practice. How does this process affect the activities of the regimental commander, quartermaster, or chief of technical services?

[Answer] What does practice derive from the activities of the MEI? That is a fundamental issue. Let me begin by recalling the well-known Marxist thesis that the goal of every science is to transform reality; herein lies its social meaning. The MEI is the only scientific-research center of the Ministry of National Defense (MND) which develops theoretical studies in the field of defense economics and military economics and conducts practical research. Since 1971 it has had a modest research potential and, dividing its efforts into teaching work and scientific research, it tries to make its research useful to practitioners, i.e., to the regimental commander, quartermaster, or chief of technical services. Proper utilization of human potential and materials resources during the military training process depends mainly on these people.

This requires both general military and technical knowledge, as well as economic knowledge. Our institute makes it possible to obtain the latter. The forms may vary--we have already mentioned the studies. Another form are courses or independent study of materials, publications and textbooks prepared by us.

So far as I know, commanders, quartermasters, and officers of the technical services make use of this in their daily activities.

[Question] Scientists know their thing and the company quartermaster sergeant knows his. Without his good management everything else seems to become less important.

[Answer] A scientist cannot replace a company sergeant or commander and the converse. But this does not mean that they should not cooperate with each other. After all, both of them have to know more and more: the scientist about the specific operations of the company, or to put it more broadly, the detachment which has a large amount of equipment of various design and great value; and the company commander and sergeant about specific methods of efficient operations. Knowledge of these methods may improve the efficiency of management. Of course, in order for the company commander and sergeant to manage better--in accordance with scientific principles--suitable conditions are required, and the creation of such conditions is not always up to them.

[Question] What is the remedy for this?

[Answer] The remedy is to strive for cooperation between scientists and practitioners, even on the lowest levels of military economic management. It is also essential that the research subjects correspond to the problems which are most vexing at that time to the company commander or sergeant, or more generally, to the cadre of the management detachment. As a result, proposals and generalizations will come forth which will be suitable for direct application in practice and which will have an impact on the effective development of that area of military economic management...

[Question] ... which is the domain of practitioners, i.e., the main cadre of the regiment, or to put it differently, the management detachment.

[Answer] Military economic management is a complex system, and as such it is the object of interest of theoreticians and practitioners. But it is correct to call attention to the military units which perform the function of management detachments. It is they who are the primary elements of the military economy. To bring this concept closer, it may be said that the place they occupy in the armed forces is just as important as that of production enterprises in the national economy.

In the management detachment, the effects of all actions are evident--the actions of the superior organs of the army as well as the actions of the organs of the detachment itself. Because of their large human and material resources, they can create combat readiness and capability of units under various levels of efficiency, taking the primary principles of efficient management fully or partially into account.

[Question] Where, aside from instructions, directives, guidelines and orders--which cannot always be studied in the unit for lack of time--can one find condensed information on this subject?

[Answers] Economic problems which occur in the unit, in the theoretical and practical aspect, are presented comprehensively in the book "Economic Management Detachment. Elements of Theory and Practical Operations." The officer and civilian employee of the army, regardless of his specialty, can find specific information in this book which can be of great use to him. The following subjects are discussed: problems relating to the identification of the detachment in the system of military economy; principles of efficient management; main economic processes; and problems relating to cost-effectiveness accounting under military conditions. Based on research, ways in which certain activities, which may form the basis of ideas which may determine progress in all operations on the detachment level, are also pointed out.

[Question] The 13th National Conference for Efficient Management of the Armed Forces is drawing near. Achievements are being summed up. What is the MIE coming with to the conference?

[Answer] The MEI functions on two planes: it teaches and it conducts scientific research. These tasks stem from the needs of the armed forces and make up part of the Ministry's plans. Therefore, at the conference we will present our achievements in scientific research and the applications of these results in practice, and our achievements in the field of economic education in the armed forces.

[Question] That is general. And more specifically?

[Answer] In addition to participating in the teaching process of the Economic Sciences Department of the Military Political Academy, during 1983-1985 we trained approximately 900 persons from the cadres of different departments and levels in specially organized courses and conducted over 50 two- and four-hour lectures in the central institutions of the Ministry of National Defense and selected military units.



It has already become traditional to organize, jointly with civilian colleges, a conference of lecturers on the subject "The Economics of Defense." Last year such a conference was held in Opole and the main topic was problems of the defense and defense-oriented industry. This year, however, we are organizing the conference jointly with Lodz University, and it will be devoted to the question of economic security. No one has to be convinced of the importance of these problems to our economy. A second course is now being conducted for lecturers on defense economics in civilian colleges.

The scientific-teaching employees of our institute are PZPR Central Committee lecturers. Many of them lecture at the Evening University of Marxism-Leninism and are involved in other forms of education. The meetings with the workforces, where lively and educational--for both sides--discussions always arise, are most interesting.

At the 13th National Conference for Efficient Management, the institute will present concrete theoretical solutions for the needs of the economy of the armed forces. We will also present results of 5 years of economic research on improving the economic management of the army. Unquestionably, much of this has practical application. We will also show our many achievements in the form of matters already completed or underway in the field of economic education. And in this, too, lies the answer to the question--where do these good managers come from.

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POLITICS

POLAND

# PROVINCIAL PZPR PLENUMS TAP NEW LEADERS, EYE 10TH CONGRESS

Poznan GAZETA POZNANSKA in Polish 10 Jan 86 pp 1, 2

## 'Kubiak Report' Recalled in Poznan

[Report on PZPR Provincial Committee Plenum in Poznan by Maciej Lastowiecki and Janusz Truszczyński]

[Text] The subjects discussed at yesterday's Provincial Committee (PC) plenum, which was conducted by Edward Lukasik, PC first secretary, included an assessment of the execution of the 1985 plan and the 3-year plan in Poznan Province, and approval of the plans for 1986 and 1986-1990.

The provincial party organization's tasks relating to preparations for the 10th PZPR Congress were also discussed. Politburo member Stanislaw Kalkus took part in the deliberations, as well as the director of the chancery of the secretariat, Boguslaw Kolodziejczak.

The report of the PC executive board was presented by PC secretary Stanislaw Piotrowicz. Economic reform had a positive effect on implementation of the 3-year plan, the report stated. It contributed to an increase in the rate of production, which during the past 3 years grew by 24 percent. During this period also, a more rapid growth of production for the market, export and small-scale manufacture, in relation to overall production, was noted. This was achieved through a growth in labor productivity. Agriculture did very well, which made it possible to reduce state control over commodities.

In addition to the positive aspects, a number of negative ones were observed. We are still grappling with inefficiency, low effectiveness of investment processes, and poor quality of production and services. Wage-productivity ratios are incorrect and there is no improvement in reduction of manufacturing costs.

A great deal of space in the report was devoted to housing construction. Thanks to the consistent activities of the party organizations and construction-enterprise crews, it has been possible to halt the decline in construction during the past 3 years. In public housing, 15,865 units have been completed, which exceeds the plan. There has also been an improvement in



the availability of water to Poznan and in pollution control, thanks to completion of the first stage of construction of a sewage treatment plant.

Some weak points have also been noted in the operations of the party organizations and echelons. Insufficient progress has been made in combating waste in the workplaces, poor management, and bad work discipline. Unsatisfactory results have also been obtained in solving problems such as cost-fixing and the price of technical and organizational progress. The party organizations must give more attention to these problems.

Courses of action for agriculture in the plan for 1986-1990 constitute a continuation of the intentions of the past 3 years. Priority has been given to municipal and housing management, agriculture, health protection, and education, as reflected in the structure of the division of investment outlays. These priorities were given public support during the discussion on the 5-year plan.

If these tasks are to be accomplished, modernization must be accelerated, maximum use must be made of production capacity, there must be greater compulsion towards economical management, and the struggle with inefficiency and waste must be intensified as well as the activeness of the entire provincial party organization.

Stanislaw Steplowski, Poznan governor, took part in the discussion, saying that although Poznan Province can be proud of its many achievements there is still a great deal of neglect in the socioeconomic infrastructure, and this is an obstacle to the province's future. This pertains particularly to municipal heating-plant construction, the municipal water system, and development of land for future housing construction. Surmounting these obstacles is one of the most important problems.

These problems were covered in the report which was presented to the chairman of the planning commission in the Council of Ministers. As a result, help was obtained from some ministries which included in their plans a number of investments important to our province, such as the construction of a beltway around northern Poznan, expansion of the university, and construction of a margarine factory in Szamotuly. Despite that, many matters important to the residents of Poznan will not be able to be resolved satisfactorily without the help of the central government. But this does not excuse us from the duty to make full use of our funds and capabilities.

Benon Polczynski said that the PZPR PC Economic Commission approves the proposals embodied in the plan. However, during the discussion a number of doubts came to light. They pertained to financial safeguards on the investments being implemented in the province, the realism of the plan for housing construction and major repair of old housing, and the use of local reserves of raw materials and scientific potential. In the opinion of the commission, the participation of enterprises in solving municipal problems through allocation of money and materials must be expanded. The postponement of several capital-investment projects, namely the "water for Poznan" program, modernization of the electric-power and heat-generating plant, and construction of a rapid streetcar, has also aroused the Commission's concern.

Zbigniew Cygan concentrated his attention on export problems. According to him, export should not be someone's "hobby" but a patriotic duty. He said that the preferences for export should be greater and that coproducers should also be allowed to take advantage of foreign-exchange allowances. He also talked about a problem connected with implementation of savings programs. The Swarzedz Furniture Factories have done a great deal in this area. For example, wastes from polyurethane foam and feathers are used in the production of upholstered furniture.

Walenty Trudnowski spoke of problems pertaining to development of small industry. He said that elimination of this industry in past years has resulted in smaller deliveries of goods to the market. Present attempts to revive the state's local industry are not adequate, as proven by the fact that a mere 5 million zlotys has been allotted in the 5-year plan for this purpose.

Klemens Ratajczak said that during the present 5 years we will have to grapple with problems more difficult than any encountered during the postwar period of People's Poland. How to accomplish these tasks when worktime utilization is declining, additional shifts are not being added, and, at the same time the number of people of postproduction age is increasing. As a result, households are becoming increasingly dependent on income from social services. That is why it is essential that strong measures must be taken to compel improvements in management efficiency.

Stanislaw Reder called attention to that fact that many enterprises chose diesel-oil powered vehicles for their motor pool. It turns out now that there is a shortage of this fuel. Therefore, to make the best use of transport, empty-load trips should be eliminated, work on construction of engines which use less fuel should be accelerated, and a new incentive system for drivers should be developed, because the one now in effect is not working.

Benon Jelinowski said that farm production can be increased if agriculture receives more nitrogen fertilizers, lime, pesticides, and machines and equipment. Installation of waterlines to the rural areas is also essential. That is why the party organizations should initiate actions which would mobilize the people to greater civic activity.

Wojciech Weiss spoke of the tasks of the engineering intellectuals in solving the country's socioeconomic problems. If there is to be more innovation, if modern structural and technological findings are to be applied, the technical and engineering cadre must do more. The NOT (Chief Technical Organization) bodies support these measures. They will stimulate activity in the associations and strive to enhance cooperation between scientists and practitioners.

Ryszard Witkowski stated that outlays for housing construction in the 5-year plan do not cover needs. Therefore, the appropriated funds must be increased, the participation of enterprises in the construction of infrastructure must be expanded, and the municipal enterprises must make broader use of bank credits.

Comrade Ryszard Garczynski talked about the difficult situation in the Municipal Transportation Enterprise. There is a lack of people and of means

of transportation, and technical facilities are inadequate. If the situation here does not change, we cannot expect transportation in Poznan to improve.

Wojciech Bobek called attention to the inadequacies in the food industry. It requires immediate modernization, use of modern technologies, and expansion of warehouses and cold-storage houses. Because these are not available, many food items are simply wasted. That is why more money should be allocated for this industry, as shown in the program for feeding the nation. In his opinion, an enterprise should be established which will specialize in construction of plants for the food industry.

Alfred Hofman said that new norms in construction result in more materials being used and higher costs. This is due to the fact that thus far a system has not been developed which would force all participants in the investment process to economize. He also stressed that under the present profits structure, the building combines do not have the funds to provide for their own expansion. Under these circumstances, it will be difficult to accomplish the tasks assigned in housing construction.

Tadeusz Skubiszynski spoke of the tasks which must be accomplished in connection with the housing-construction program. On the other hand, Leszek Grajek acquainted those attending the plenum with the work of the communications-transport industry task force, which exists in the PC. He also raised the problem of delays in construction of the electric-heat and power-generating plant in Karolina.

Jerzy Kwiatkowski concerned himself with problems pertaining to economic mechanisms. In his opinion, economic regulations should be tough, making it impossible for enterprises to obtain high profits by increasing prices.

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In summing up the first part of the deliberations, Edward Lukasik said that the program for the province's development cannot be separated from the realities of socioeconomic life, which are linked with the hopes and expectations of the broad masses of its residents. Positive trends which can be observed today, as, for example, the introduction of incentives into management systems, should be expanded and strengthened as much as possible. Nor should it be forgotten that the effectiveness of the implementation of the resolution passed at the plenum, which speaks of an improvement in the living conditions of all citizens, depends, above all, on us alone. On how much we do and how we employ the reserves which lie in the subjective sphere of sociopolitical life.

In the second part of the deliberations, PC secretary Jan Mielcarek discussed the provincial party organization's tasks in connection with preparations for the 10th PZPR Congress. How efficiently the meeting of the highest party authorities proceeds and what it covers will depend to a large degree on the pre-Congress preparations. The approaching Congress arouses the interest of all people, of our friends and our opponents. Thus, the broadest possible masses of citizens should be included in the pre-Congress preparations, so that they can regard this Congress as being theirs. This means that there

must be assurance of high party discipline, wide discussion of the party's draft program, and further improvement in the economic reform system.

Next the PC secretary discussed in detail the schedule of the provincial organization's work preceding the 10th Congress, with special attention to an assessment of the implementation of the program accepted at the Ninth Extraordinary Congress.

In a short discussion the comrades taking part in it shared their opinions on the preparatory activities, underscoring the urgent need for active commitment, initiative and discipline on the part of all party members.

At the conclusion of the deliberations, Boguslaw Kolodziejczak took the floor. He said that the next few months will become another stage in the life of the party, a stage during which the past must be carefully examined. It must be honestly and reliably evaluated so as to draw the most effective conclusions for the future. We are thus approaching the pre-Congress campaign in the most responsible and serious way.

The fact that both the program and the Congress theses will be discussed in open party meetings must be regarded as a positive aspect. It underscores the weight of the international significance of this event in the life of our country. The period that has elapsed since the Ninth Congress was a time during which we learned anew to conduct a dialogue with society. There remains a great deal to be done in this respect. We must once more go back to the "Kubiak Report," severely assess the possible repetition of mistakes, subject new mistakes which appear to a penetrating examination, and do this primarily with an eye to the future.

If the 10th Congress is to fulfill its task, it must provide an answer to the question: What is the state of the party? It should not be necessary to add that the answer can be made after a thorough and honest assessment of the sociopolitical reality, made from the very bottom.

The meeting ended with the singing of the "Internationale."

#### Leszno PZPR Elects Sawicki

Poznan GAZETA POZNANSKA in Polish 11-12 Jan 86 pp 1, 2

[Text] The PZPR Provincial Committee (PC) met in Leszno yesterday in a plenary meeting. Central Committee (CC) secretary, Zbigniew Michalek, took part in the meeting.

Present also was the deputy director of the CC Cadre Policy Department, Jerzy Wojcik, and the director of the CC Letters and Inspections Department, Marian Kot. The meeting, which was entirely devoted to organizational matters, was opened by Jan Plociniczak, PC first secretary.

Plociniczak informed those attending the meeting that for reasons of health he has requested the CC Politburo to relieve him of the duties of PC first secretary in Leszno.

The members attending the meeting, in an open vote, with one vote abstaining, accepted Jan Plociniczak's resignation.

Next the chairman gave the floor to Kazimierz Paszek, who read a letter from the executive board of the PC expressing thanks to Mr. Plociniczak for his many years of committed and dedicated work in the party apparatus.

PC secretary Zbigniew Michalek, as empowered by the Politburo of the PZPR CC, recommended Stanislaw Sawicki, until now PC secretary, to the post of first secretary of the PC in Leszno. By secret ballot Sawicki was elected unanimously. After that, a plan for the work of the PC and its executive board in the first six months of this year was approved.

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Stanislaw Sawicki was born in 1943 in Adolfow near Chodziez in a family of intellectuals. He holds a master's degree in administration and has worked in state farms and education. He combined his career work with political and social activity, filling various responsible party positions, including secretary of the PZPR County Committee in Gostyn and first secretary of the PZPR City-Gmina Committee in Gostyn. In 1981 the provincial reports-elections conference elected him PC secretary in Leszno. He has been a member of the people's councils at various levels for many years. He was a delegate to the Ninth PZPR Congress. His decorations include the Cavalier Cross of the Order of Polonia Restituta, the Silver Cross of Merit, and the 40th Anniversary of People's Poland Medal.

#### Tarnow Elects Plewniak

Krakow GAZETA KRAKOWSKA in Polish 13 Jan 86 pp 1, 2

[Text] The Saturday plenary meeting of the Provincial Committee (PC) in Tarnow, which was conducted by Politburo member and PC first secretary Stanislaw Opalka, was devoted to assigning the provincial party organization's tasks for implementation of socioeconomic goals in 1986 in light of the 23d CC Plenum resolution. Those attending included: Jozef Czyrek, Politburo member and CC secretary; Wladyslaw Loranc, director of the CC Ideological Department; Boleslaw Smagala, deputy director of the Cadre Policy Department; Stanislaw Partyla, chairman of the ZSL PC in Tarnow; Stanislaw Gajewski, chairman of the SD PC and member of the CC Presidium; Stanislaw Nowak, Tarnow governor; and the first secretaries of the primary level echelons and representatives of the largest factories in Tarnow Province.

In presenting the report of the executive board, PC secretary Edward Gajek said that the tasks which we are assigning today should be an inspiration for all party elements, for socio-occupational organizations, and the workforces, in undertaking the province's most urgent socioeconomic problems.

The tasks are based on the performance of the 3-year plan, which was aimed at restoring the economy. This was not at all easy considering the fact that it had fallen into complete disorder and that manufactured production had dropped 15 percent over that of 1979. In addition, worktime utilization and



production capacity figures were worse and the quality of production dropped significantly. Therefore, a course of action had to be chosen which would slow down and gradually eliminate the negative tendencies in the economy and ease social tensions. The 1984 level of production, 2.6 percent higher than in 1979, which was the best, speaks for itself. In the past year, despite problems in employment and availability of raw and other materials, as well as the difficulties stemming from a severe winter, this growth tendency has continued because labor productivity has increased. During 1983-1985 the production of products for export to CEMA countries and the Soviet Union, as well as to the second payments area [capitalist countries], grew at a rapid rate, and due to the initiative of the party organization the assortment of products has been expanded and many new products are being produced. Party efforts in behalf of closer cooperation between trade and industry have brought results: each year the province's market gained commodities valued at approximately 5 billion zlotys. Profitability of production improved as a result of implementation of savings programs.

Implementation by agriculture of the resolutions passed at the PZPR CC and ZSL SC joint plenum, and the PZPR CC and ZSL resolutions, made it possible to revive production. Grain and fodder crops were larger, followed by a gradually rebuilding of herds. Horticulture, poultry and milk procurement figures were also better. There was a definite improvement in the availability of farm machines and equipment to the countryside. During 1983-1985 almost 1.9 billion zlotys was allocated for land reclamation. As a result, there are now two new pumping stations, about 2,500 hectares of reclaimed land, over 11 kilometers of straightened rivers and canals, and 26 kilometers of embankments. During this time almost 100 kilometers of water-piping and 350 kilometers of gas-piping was installed. A number of capital projects of great public usefulness were completed: water intakes and mains in Debiec and Tuchow, nine preschools, four medical clinics, and seven health centers. The construction of a Provincial Hospital in Tarnow, a Provincial Telecommunications Center, and a Specialized Clinic in Tarnow, went well.

However, these successes should not overshadow the tasks and problems which must be solved in the next few years. In industry the need to avoid disinvestment of capital assets is becoming more and more urgent. Quality of production must be improved, technical and organizational progress must be accelerated, work discipline must be increased, and there must be a closer relationship between wages and labor input and results.

Decisive progress must be made in tying wage increases to greater labor productivity. In past years this was the weakest element in the economic-financial system. In capital investments, preference should be given to housing construction, health care and social welfare, agriculture, the food economy, and education and upbringing. The severe strains appearing in housing construction have caused difficulties in implementing the plan. Work connected with land development and the building enterprises potential must be accelerated. The provincial government's decision to allocate one billion zlotys to expand the technical-production facilities in these enterprises should help. The scope of maintenance and repair of old housing, under the direction of the workplaces, should be expanded. The establishing of small housing cooperatives, including those for youth, should be helpful here.

The discussion was begun by Henryk Lesniak, who concentrated mainly on the economic operations of the Nitrogen Works. He called attention to the losses, which cannot be made up, caused by reductions in electric energy and gas. But despite the disinvestment in equipment and the drop in employment from 14,000 to 9,000, just as much is produced as before the crisis. He stressed the need for modernization, automation and electronics.

Jan Reszetnik, chairman of the Provincial Planning Commission in Tarnow, in talking about the problems of low employment in the factories, suggested that the larger enterprises refuse to employ, for a fixed period of time, workers who left other enterprises which are partners to such an agreement. He called attention to the large reserves in the labor force. This is a question of using pensioners and forming management teams, which is not very popular at this time.

The main problem, according to Mieczyslaw Rojek from "Tamel," was allocation of materials.

Ferdynand Gollemo, from the Polish Economic Society (PTE) Local Board, reported on the Society's activities in applying economic reform. Wladyslaw Fornal talked about the modernization of the Prestressed Concrete Decks Production Works, which has not only made it possible to increase production but has improved working conditions. The workforce is doing a great deal of the modernization work itself, but specialized firms must also be employed. He also mentioned the lack of coal, which has upset the residents.

Bronislaw Soprych, in reminding that we have entered into the year of the 10th PZPR Congress which is to outline the prospects for the development of the state and the nation, said that talks and discussions during the pre-Congress period should be bold and responsible. He called attention to the fact that criticism is necessary, but that it should be by name, particularly in the mass media, which is prone to fault-finding.

Franciszek Guz spoke on the implementation of a savings program in STOMIL. Thanks to this program, savings have amounted to 270 million zlotys. He expressed the belief that good utilization of raw materials and energy and application of scientific and technical advancements will bring further savings. Aleksander Midura talked about the situation in agriculture.

The director of the Szczucin "Izolacja" enterprise, Wacław Ofiarski, spoke of the need to modernize as quickly as possible.

Tadeusz Para talked at greater length about availability of consumer goods and production quality. One of the most important causes of the crisis, he said, is the disastrous state of quality. Because of this waste, losses amount to 600 billion zlotys. Therefore, the need for a radical improvement in quality should be a general goal of reform.

Jozef Sit talked about the present and future status of housing construction, reporting that 5,000 members and 14,000 candidate members in the province are waiting for their own apartments.

Henryk Koziol, first secretary of the PZPR City Committee in Tarnow, discussed the implementation of socioeconomic tasks in that city during the past 3 years. He called attention to a number of problems which must be solved as soon as possible, particularly expansion of education facilities, housing construction, transportation, and municipal management.

Leszek Sroga stressed the urgency of modernizing the Tarnow railroad station, which is now over 75 years old, and the transshipment terminal. Preliminary decisions have already been made regarding the latter.

The last person to take the floor in the discussion was Jozef Czyrek, CC secretary. In speaking about implementation of the policy of acceleration, which will be part of the 5-year plan and the party's new program, he said unequivocally that we must be able to implement this policy. He said also that we are not the only country in the world which is in debt. How we repay the debt will depend in large measure on the amount of foreign trade. Nevertheless, in our policy of dialogue with our creditors we must take the following position: Debt payment cannot take place at the expense of the country's socioeconomic development; it cannot unduly reduce the nation's standard of living. It may, however, take place with the cooperation of our creditors. The latter will be most difficult, however, because we signed payments agreements before the West removed restrictions and economic sanctions. Repayment of debt is possible in 20 to 25 years. The basic argument which will determine a solution to the problem is effectiveness of development. The year which we are entering is the first year of the 5-year plan, and how we finish this year and begin the following year will determine the line of policy called acceleration. We have everything it takes to accomplish this, but it will take the good work of the entire economy and the wise activities of the party members.

The plenum heard a report on the work of the executive board of the Provincial Reporting Conference up to 31 December 1985 and the plan for political-organizational endeavors in the pre-Congress campaign. The candidacy of Adam Markuszewski for the position of director of the PZPR PC Economic Department in Tarnow was approved unanimously.

The plenum passed a resolution defining the provincial party organization's tasks in the implementation of socioeconomic goals in 1986 in the light of the CC 23d Plenum resolution.

At this point PC secretary, Franciszek Rachwal, took over the conduct of the deliberations and reported that Stanislaw Opalka, Politburo member, has submitted his resignation as first secretary of the PZPR PC.

Secretary Jozef Czyrek took the floor: "On instructions from the Politburo it is my duty to inform you that Comrade Opalko has submitted a request that he be permitted to retire. Comrade Opalko was elected during an extremely difficult sociopolitical situation in the party in the party and the state. This required special commitment, dedication, adherence to principles, courage, enormous experience and political judgment. By his attitude and his conscientious work he met the demands and expectations of the situation. He performed the duties of his earlier positions, prior to assuming the PC first



secretary position, well, beginning with journeyman to managing director of the Nitrogen Works." In a secret vote, those attending the plenum unanimously acceded to Opalka's request that he be relieved of the post of PC first secretary in Tarnow. Secretary Czyrek, speaking for the Politburo and the first secretary of the CC, Wojciech Jaruzelski, warmly thanked him for his dedicated work, at the same time handing him a statement addressed to him by Jaruzelski.\*

Others who sent thanks to Stanislaw Opalka for his work included Stanislaw Partyla, ZSL PC chairman, Stanislaw Gajewski, SD PC chairman, Stanislaw Nowak, governor of Tarnow, representatives of workplaces and youth. In thanking everyone, Opalka said that these warm words are the greatest thanks for him. He also expressed his willingness to work further for the good of the country and the province.

Jozef Czyrek, also in behalf of the Politburo, recommended Wladyslaw Plewniak for the position of first secretary of the PZPR PC in Tarnow. By secret ballot 57 of 59 persons attending the plenum voted to elect Plewniak to the post. Taking the floor, Plewniak sincerely thanked the party leadership, the executive board of the PC, and the plenum members, for electing him to this honored and responsible position.

The plenum concluded with the singing of the "Internationale."

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Wladyslaw Plewniak was born on 12 October 1945 in Pibice near Krakow in a peasant family. He is a college graduate with a master's degree in economics and has been a member of the PZPR since 1970.

In 1969 after graduating from the Higher School of Economics in Krakow, he began his career work in the Provincial Footwear Trade Enterprise in Krakow as economist. He became active in the youth movement at an early age, and in 1971 he became tenured and held the following posts: Chairman of the County Board of the Rural Youth Union in Krakow, chairman of the Federation of Socialist Unions of Polish Youth Provincial Council and chairman of the Provincial Council of the Union of Socialist Polish Youth in Tarnow. During this period he was a member of the Provincial People's Council in Krakow and Tarnow and was active in agricultural self-managements and rural sports organizations. He was a member of the executive board of the PZPR County Committee in Krakow, the PZPR PC in Krakow and the PZPR PC in Tarnow.

In 1978 he began to work in the PZPR PC in Tarnow where initially he was director of the Organizational Department. In 1982 he was elected PC secretary. He is very hardworking, is thoroughly familiar with problems, and is fully committed to party activities. He holds the Silver and Gold Crosses of Merit.

\*Statement from PZPR CC first secretary Wojciech Jaruzelski to Stanislaw Opalka on the occasion of his retirement:

Dear Comrade:

Accept my sincere thanks for your dedicated and fruitful work as first secretary of the PZPR Provincial Committee in Tarnow. By your commitment and attitude as a communist and patriot you have earned sincere praise and thanks. Under your leadership, the Tarnow party organization acquired new strength and can be credited with many important achievements. I wish you good health and long life in your further work for the good of the party and socialist Poland.

Elblag PZPR Elects Smagala

Gdansk GLOS WYBRZEZA in Polish 14 Jan 86 pp 1, 2

[Report on PZPR Plenum in Elblag by Mirosław Dymczak]

[Text] The tasks of the provincial party organization ensuing from the CC 23d Plenum, measures and actions to be taken prior to the 10th Party Congress, and organizational matters--these made up the agenda of yesterday's plenary meeting of the party's provincial committee in Elblag.

Zbigniew Michalek, PZPR CC secretary, and Władysław Honkisz, director of the CC Cadre Policy Department, attended the meeting. Present also were the members of the central party authorities in Elblag Province and the first secretaries of the primary echelons. The following persons were also invited to attend: Franciszek Socha, ZSL PC chairman; Stanisław Barański, SD PC chairman; Ryszard Świecicki, Provincial People's Council chairman; Col Ryszard Urlinski, governor; Ryszard Szkolnicki, chairman of the Patriotic Movement for National Rebirth Provincial Council; and Jarosław Dywizjusz, Provincial Administration of the Union of Polish Socialist Youth.

The report of the Provincial Committee's executive board on the tasks ensuing from the CC 23d Plenum resolution was delivered by PC secretary Jerzy Głiszczyński. He began by saying that most of the provisions of the socioeconomic plan for Elblag Province for the years 1983-1985 have been implemented. The achievements of the province's industry, particularly the cooperative industry, place it among the country's leaders.

Agriculture has done well, especially plant production. Successful implementation of the government's May 1983 resolution, which allocated additional funds for modernization of flood-prevention systems and land reclamation in Zulawy, had a great deal to do with this.

However, both in industry and in agriculture much more can be done. In the first of these better use could be made of working time, raw and other materials, and fuels and energy, and the quality of products could be greatly improved. The most unfavorable aspect in agriculture is the drop in cattle herds, and particularly cows, which means that milk deliveries are much lower.

Putting these reserves to work is the main task for the current year and the entire 5 years now just begun. In industry, export must be intensified and

action to halt inflation and reduce manufacturing costs must be more effective. The technical-engineering and economics staffs of the enterprises, and party members also, must play a leading role here. A great deal of attention must be paid to improvements in construction, primarily housing. It is true that it fulfilled its tasks in this respect for the years 1983-1985, but it has not fully satisfied the expectations of the people.

The discussion prior to the 10th Party Congress will also help to define the ways in which the management efficiency of Elblag Province can be improved in the coming years. The provincial party organization is appealing to all party members and to those who do not belong to the party but who are not indifferent to the future of our socialist motherland, to take part in this discussion.

Col Ryszard Urlinski, governor, next took the floor, presenting the detailed results of the implementation of the tasks for 1983-1985 and the draft of the plan for the current year. [These subjects were discussed in yesterday's issue of this newspaper, in the report on the governor's press conference. Therefore, we will briefly note that industry in Elblag Province last year produced and sold products valued at 95 billion zlotys, 9.4 percent more than in 1984; grain procurement totaled 195,000 tons; slaughter livestock, 42,700 tons; and milk, 262 million liters. There was 5.2 percent less cattle (243,000 head) than the preceding year, including 6.8 percent fewer cows; the number of hogs (347,000) increased by 6.1 percent. During 1983-1985 5,672 apartments were completed, 96 more than had been planned.

In 1986 key industry production in Elblag Province is supposed to grow 8 percent over last year. Construction intends to build 2,146 apartments (7.7 percent more than last year), while 137 buildings will undergo major repairs. For investments included in the local plan, 11.1 billion zlotys will be spent. It is also envisaged that yields of commercial grains and plants in agriculture will also increase and that Zulawy will continue to be modernized. The province received 2 billion zlotys out of central funds for this purpose.

If the tasks for the current year are to be accomplished, the basic rule must be efficient management, thrift and economy.

The chairman of the NOT (Chief Technical Organization) Provincial Council, Adam Zapalski, said in the discussion that in the implementation of the tasks for the current year and the entire 5 years (1986-1990), responsibility lies mainly with the technical-engineering and economics staffs. However, they must be given financial and organizational assistance to enable them to be more efficient. The initiative here must come from the bottom, with no looking to the upper levels because, after all, enterprises now are self-dependent, self-managing and self-financing.

Jan Obrzut, director general of Zamech, talked about what is being done in the province's largest industry to modernize products. During this 5-year plan it will produce materials-efficient, multifunctional 465 KW capacity turbines for the first Polish atomic power plant in Zarnowiec. It will continue to work on the design of 1,000-megawatt atomic power units, build prototypes of 370 and 220 MW thermal-condensation units, design a new type-

series of 50-150 MW heat-generating machines, and modernize several dozen 120 and 200 MW turbines already operating in domestic conventional power plants. The program for rebuilding the turbine potential of Zamech includes a search for new cadres, which will also be done by building more housing and adding new vehicles to the plant's motor pool.

Roman Zaboklicki, a fisherman from Sztutowa, brought up the problem of housing construction on the Vistula [River] sandbar, pointing out that a private individual cannot build a house because of lack of basic materials--cement, pipes, asbestos-cement roofing material, roofing cement and paper, and recently also due to the raging prices of building lots.

The next speaker, Leszek Woznowski, chairman of the WZSP Board, in a more extensive presentation, described the problems of the work cooperatives in the province. This department has unquestionable experience in production and export, but is falling further and further behind insofar as its services are concerned. This is due to the ever-growing numbers of personnel who leave to take jobs in enterprises which offer higher wages.

This point on the agenda was summed up in a resolution which defined the courses of action of the Elblag party organization for the next few years in the area of management. Its intent is to survey the existing weaknesses and rapidly improve efficiency on every level of management.

The provincial party organization's tasks prior to the 10th Congress were described by the PC secretary, Ryszard Rutkowski. In the resolution passed on this matter, it is envisaged that the first pre-Congress conference will be held in Ostaszewo gmina, and that the last ones will be in Elblag and Kwidzyna. It was initially decided that the provincial conference will take place during the last 10 days of May 1986. The Elblag organization will be represented at the Congress by 20 delegates, of which one will be elected in Zamech.

In that portion of the agenda dealing with organizational matters, PC secretary Zbigniew Michalek reported that Jerzy Prusiecki has asked that he be relieved from the position of first secretary of the PZPR PC in Elblag due to his change of jobs. He has performed this function for over 5 years. The CC Politburo has acceded to his request, thanking him for his many years of fully dedicated work in the party apparatus. He has also received a letter of thanks from CC first secretary Wojciech Jaruzelski.

The members of the Provincial Committee in an open vote agreed to his departure. In their behalf, Jerzy Gliszczyński thanked him, after which everyone in the hall sang "May You Live a Hundred Years!"

As authorized by the Politburo, CC secretary Zbigniew Michalek recommended Boleslaw Smagala for the PC first secretary post. Smagala is the former deputy director of the PZPR CC Cadre Policy Department. He is linked with Elblag both by his many years of professional work and his party activities.

In a secret vote he received 66 affirmative votes out of a total of 67 cast, electing him to the first secretary position.

In thanking his comrades, Smagala said that his program is joint work with all party members and all residents of the province in behalf of further, and even more dynamic, growth of Elblag. The main tasks he assigns to himself are the consolidation of the power and authority of the party, which is based primarily on the authority and personality of its individual members. All of them, therefore, should serve as an example of work quality, commitment and moral stance.

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Boleslaw Smagala was born 27 September 1936 in Trzciana near Rzeszow in a peasant family.. He graduated from the Krakow Mining and Metallurgy Academy and holds a master's degree in foundry engineering. He has belonged to the PZPR since 1965.

From 1962-1967 he worked in Zamech, in Elblag, as a senior metallurgist and then as a department manager. He was also active in the factory youth organization. From 1967-1971 he was employed in the PZPR Provincial Committee in Gdansk, first as deputy director of the PC Industry and Construction Department and then as director of that department. From 1975 to 1977 Smagala was PZPR PC secretary in Elblag. In 1977 he took a position with the Ministry of Metallurgy and Machine Industry. He performed the functions of first secretary of the PZPR Plant Committee and then from 1981 to 1984 was managing director in this ministry.

On 16 February 1984 he assumed the position of deputy director of the PZPR CC Cadre Policy Department.

#### Slupsk PZPR Elects Czarasty

Koszalin GLOS POMORZA in Polish 15 Jan 86 pp 1, 2

[Report on PZPR Provincial Committee Plenum in Slupsk by Waldemar Pakulski and Jaroslaw Duchnowicz]

[Text] At yesterday's plenary meeting the PZPR Provincial Committee (PC) in Slupsk discussed the provincial party organization's tasks prior to the 10th PZPR Congress. The meeting, which was conducted by PC first secretary Edward Szydlik, was attended by CC secretary Henryk Bednarski and the deputy directors of CC Departments--Cadre Policy, Jerzy Wojcik, and Social-Vocational Zygmunt Czarzasty. The secretaries of the local echelons and the directors of the regional party work centers were also present.

Tadeusz Jarecki, PC secretary, delivered the report of the PC executive board. The pre-Congress campaign, he said, will be a good opportunity to review our strengths and correct the weaknesses which remain. During this period, it will be our duty to reach every party member, so that he can frankly tell us what is disturbing to him, what he would like to improve and propose. Party meetings will be an important part of the campaign. Every Primary Party Organization (POP) should strive to involve all circles of society in a pre-Congress discussion. It is important that matters which the party will bring up at the Congress are first evaluated and supplemented by the ideas of those

who, together with us, will be implementing the party's resolutions. The party is gradually restoring its credibility among the people. This is shown by the results of the elections to the people's councils and the Sejm, and by the increasing strength of the party and its workers' character. Last year we accepted 952 candidates, 344 more than in 1984, and workers and peasants make up over 55 percent of this group. At the end of December 1985 our provincial organization numbered 28,555 members and candidates.

However, the success of our aims does not depend on party members alone, underscored the PC secretary. We need the participation of all of society, particularly now, in the pre-Congress debate on the draft PZPR program and congress theses. We are all waiting for lower inflation and more consumer goods on the marketplace. But this will be possible only when an increase in production exceeds a growth in wages. And we are still far from that, in our province, too. Another problem is economical management of energy and materials. Progress on this has not been good, and without it there can be no talk of a 20 percent growth of industrial production, as envisaged for the next 5 years. The same thing can be said about the amount of our export and the quality of our export offer.

There are many more, equally important, topics. We should all discuss them thoroughly and look upon this discussion as being an education in economics.

We must be extremely careful in our approach to problems which worry people, T. Jarecki stressed, to the suggestions which were made during the elections campaign for the people's councils and Sejm. They must constitute the substantive work of the primary organizations and echelons.

At the meetings and conferences we will be electing delegates. If the composition, by class, of the future party authorities is to be correct, workers, peasants, and young people who have distinguished themselves in vocational and social work should be among the delegates.

The pre-Congress campaign gives us an opportunity to greatly extend the front of our joint operations.

Zbigniew Rychly, director of the Regional Center for Party Work in Slawin, opened the discussion. He presented the preconditions for the pre-Congress campaign now being prepared, discussed the party members duties in this campaign, and the preparations underway in this province for this important political event.

Tadeusz Wyszomirski, Gmina Committee first secretary in Potegowo, talked about the strengthening role of the party in the gmina and the improving political atmosphere, as shown by the activeness of its residents and organizations.

Jan Morozowski, Gmina Committee first secretary in Glowczyce, said that the POP and the echelons will have to be more active if the pre-Congress campaign is to proceed correctly. He described the plans of the gmina echelon during this period and the problems which remain to be solved.

Jozef Kliszc, first secretary of POP ZREMB in Jezierzyc, described the enterprises's management operations. There has been an increase in production



and management efficiency, as proven by a distinct growth in labor productivity and export, as well as improved quality of machinery and equipment produced. This has been possible because the POP has adopted another style and method of management, its members have joined together, and a bold approach has been taken in solving various management and social problems.

Czeslaw Lejnik, chairman of the provincial board of the Union of Polish Socialist Youth, speaking of the changes being made in public awareness, in promoting activeness and responsibility, pointed to the participation of the younger generation in the province's socioeconomic achievements. He described the Union's plans in the political campaign prior to the 10th PZPR Congress, which are directed at consolidating the organization in various youth circles and stimulating the young people to become active in work for the good of the Motherland.

Jan Zieniuk, City-Gmina Committee first secretary in Czarno, described his committee's plans in the pre-Congress campaign. He also pointed to some problems stemming from the inadequate work of some low-membership POP in the rural areas and suggested that more political and organizational assistance be given to these organizations.

At the conclusion of the discussion, CC secretary, Henryk Bednarski, spoke. He discussed the party's activities in preparation for the 10th Congress and described the country's current sociopolitical situation, which reveals that social and economic stabilization is continuing. With the end of 1985, the reconstruction of democratic changes in Poland came to a conclusion. Poland's isolation in international affairs was broken, and the unity and cohesiveness of the party and its authority among the people was stronger. We must be aware, said the CC secretary, that we are operating in difficult economic conditions. That if many public expectations are to be fulfilled, the party will have to do more in the economic sphere, so that the 25 percent growth of production envisaged in the 5-year plan will come mainly from savings of energy and materials. We should also look at the growth of the national income from various aspects, including a large population growth accompanied by a shrinking number of people of productive age. All of this requires a change in the way of thinking and acting in the entire party, which fulfills the leading role in creating political and social awareness. The campaign--the pre-Congress discussion, should consolidate the party and mobilize all of the people to greater work, through which the country will develop and the life of all Poles will improve.

The PC passed a resolution in which the course of action of the pre-Congress campaign is defined and which establishes the rules for electing 240 delegates to the provincial pre-Congress conference.

Next the PC first secretary, Edward Szydluk, turned the meeting over to PZ secretary Tadeusz Jarecki, who reported that Comrade Szydluk has requested the PC executive board to relieve him of the first secretary's position and membership on the executive board. The PC executive board approved the request. Edward Szydluk then spoke, saying that the CC secretariat approved

his request and suggested that he serve on the CC until the time of his retirement.

--I became a member of the PC in 1981 at age 55, he said, not because I wanted to make a career for myself but because the party needed me. I now believe that for the good of the provincial organization it should be directed by someone younger, with experience but also with vigor.

Szydlík thanked the PC members, the governor, and the chairman of the provincial people's council, for their cooperation and wished them all success in their work in behalf of the province.

CC secretary Henryk Bednarski, in behalf of the Politburo, thanked Edward Szydlík for his past work and read a letter of thanks from CC first secretary Gen Wojciech Jaruzelski. In open voting, with one vote against and one abstention, the PC relieved Edward Szydlík of the first secretary position and membership on the executive board.

The members of the PC, workers in the party apparatus, then expressed their sincere thanks and good wishes to Edward Szydlík, presenting him with a bouquet of flowers.

Following that, CC secretary Henryk Bednarski, as authorized by the Politburo, recommended Zygmunt Czarzasty, until now deputy director of the CC Social and Vocational Department, for the first secretary post. In the name of the shipyard party organization, to which Czarzasty belongs, Stanislaw Siudek, first secretary of the factory committee, seconded the recommendation of the Politburo. By secret ballot, with 63 affirmative votes out of 68 cast, the PC elected Zygmunt Czarzasty to the position of first secretary of the PC, member of the executive board and provincial committee in Slupsk.

At the conclusion of the deliberations, the newly elected first secretary thanked those who voted for him for their confidence and said that he will do everything he can not so as not to disappoint the PC members and the entire provincial party organization. He called upon them, the echelon's workers, and the entire aktiv, for their cooperation in working for the good of the province and its residents.

The meeting ended with the singing of the "Internationale."

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Zygmunt Czarzasty was born in 1942 in Polny Mlyn (Ostroleka Province) in a peasant family. He holds a master's degree in law from the Mikolaj Kopernik University (in Torun) Law Department.

In 1968 he completed his internship in the prosecutor's office. He was active in the youth movement during his university studies and was elected to a number of positions in the ZMS (Union of Socialist Youth). During 1968-1973 he held a full-time position in the ZMS provincial board in Gdansk, first as vice chairman and then as chairman.



He became a member of the PZPR in 1965. In 1971-1973 he was a member of the executive board of the PC in Gdansk and chairman of the Science, Education and Upbringing Committee. At present he is a member of the POP in the "Ustka" Shipbuilding Factory.

He began his vocational work in 1964 as an intern in the Provincial Prosecutor's Office in Gdansk. Following the internship he was an assessor and then an assistant prosecutor in the office of the prosecutor in Gdansk. In 1973 he went to work in the Administration Department of the PZPR CC, as senior inspector. He kept in contact with the prosecution organs and in 1978 he was nominated deputy prosecutor in the Prosecutor General's Office. Two years later he was appointed deputy director of the Social and Vocational Department of the PZPR CC. Yesterday he was appointed first secretary of the Provincial Committee in Slupsk.

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POLAND

POLITICS

PZPR ACTIVITIES CALENDAR: 9-22 DECEMBER 1985

Warsaw ZYCIE PARTII in Polish No 1, Jan 86 p 21

[Text] 23d Plenum of the Central Committee

20-21 December. The PZPR Central Committee held its 23d plenary meeting and

- discussed the party's tasks in implementing the National Annual Plan for 1986 and passed the appropriate resolution;
- received a report on the implementation of the CC 16th Plenum resolution and the status of work on the draft of the PZPR program;
- passed a resolution on convening the 10th PZPR Congress.

In organizational matters, Jozef Baryla was appointed PZPR CC secretary. Changes in CC Department directors were approved.

Central Committee Politburo Meeting

10 December. The Politburo

- assessed the status of the execution of the CC 16th Plenum resolution and decided to send a report on this subject for consideration at the next plenum;
- discussed the course and results of Wojciech Jaruzelski's visit in Libya, Algeria and Tunisia and his meeting with Francois Mitterand, president of France, in Paris;
- heard the results of Minister of Foreign Affairs Marian Orzechowski's visit in the Soviet Union.

16 December. The Politburo

- discussed the state of preparedness of the draft PZPR program and the comments and suggestions on this document made during the Second National Ideological and Theoretical Party Conference;

--evaluated the results of a check of the execution of the CC 18th Plenum resolution. The implementation of the program for educating society in economics was also examined. Familiarized itself with the preparations being made for the congress of intellectuals in defense of a peaceful world future;

--heard a report on the visit of the secretary general of the Socialist Unity Party of Germany (SUPG) [GDR] CC, Erich Honecker, in Poland. Also learned of the course and results of the visit to Poland of Willy Brandt, Socialist Democratic Party of Germany (SPD) [FRG] chairman.

#### Conferences and Meetings

9 December. Politburo members Zbigniew Messner, premier, and Tadeusz Porebski, CC secretary, took part in the opening of the "Science for Society" exhibit in the Warsaw Palace of Arts and Science.

--The visit of Willy Brandt, SPD chairman, is drawing to an end. A joint statement was approved at a plenary meeting of PZPR and SPD delegations.

--Istvan Sarlos, chairman of the Hungarian People's Republic National Assembly and member of the Politburo of the Hungarian Socialist Workers Party (HSWP) Central Committee, came to Poland on an official visit. The chairman of the PZPR Sejm Deputies Club and CC secretary, Tadeusz Porebski, met with the Hungarian guest.

10 December. Wojciech Jaruzelski, CC first secretary, received Istvan Sarlos, chairman of the Hungarian People's Republic National Assembly and member of the Politburo of the HSWP CC.

11 December. In connection with the 40th anniversary of CHLOPSKA DROGA--the party newspaper for the countryside--CC first secretary Wojciech Jaruzelski met with the editors and local correspondents of the newspaper in the CC headquarters building.

--Wojciech Jaruzelski visited the Polish science exhibit in the Warsaw Palace of Arts and Science on the occasion of the approaching Third Congress of Polish Science.

--Politburo member and CC secretary Tadeusz Porebski met in Spala with a 300-member group of Union of Socialist Polish Youth (ZSMP) aktiv from five provinces. Methods and forms of youth participation in discussions prior to the 10th Party Congress were discussed.

--The presidium of the Central Auditing Commission (CAC) evaluated the implementation of the 13th Plenum resolution and the tasks ensuing from the Politburo document on educating the society in economics. Results of a review of the cooperation between committees and their executing organizations from the Primary Party Organization (POP) were discussed. The meeting was conducted by Kazimierz Morawski, CAC chairman.

13 December. The presidium of the Central Party Control Commission (CPCC) discussed the results of the inspection, conducted in 10 provinces, on the

proper investigation of complaints and letters addressed to the Provincial Party Control Commissions (PPCC). The meeting was conducted by Jerzy Urbanski, CPCC chairman.

--The CC Committee for Management Reform and Economic Policy discussed the provisions of the National Annual Plan for 1986. The meeting was conducted by Marian Wozniak, Politburo member and CC secretary.

--Jozef Czyrek, Politburo member and CC secretary, discussed selected international problems at a meeting with CC lecturers.

14 December. CC first secretary Wojciech Jaruzelski met with newly elected officers of the Polish Economic Society in the CC headquarters building. The meeting was conducted by Politburo member and CC secretary Marian Wozniak.

16 December. At the invitation of CC first secretary and chairman of Council of State Wojciech Jaruzelski, the secretary general of the SUPG CC, chairman of Council of State of the FRG, Erich Honecker, paid a working, friendly visit to Poland.

--the Town Committee in Kobylka near Warsaw received a flag donated by members of the party organization and workplaces. The flag was delivered by Albin Siwak, Politburo member.

19 December. The CC Internal Commission, meeting under the direction of Politburo member and CC secretary Tadeusz Porebski, discussed the sociopolitical situation in the gminas with the lowest numbers of party members. Wlodzimierz Mokrzyszczak, Politburo candidate member and CC secretary, participated in the meeting.

--The CC Maritime Commission at a field meeting in Gdansk assessed the implementation of the CC 10th Plenum resolution on tasks ensuing from the state's maritime policy. The meeting was conducted by Politburo candidate member and PC first secretary Stanislaw Bejger.

--The CC Mining Commission discussed the provisions of the National Socioeconomic Plan for 1986-1990 as to development of fuels and energy and addressed itself to the tasks of the National Annual Plan for 1986. The meeting was led by Politburo member Jerzy Romanik.

--The CC Suggestions and Complaints Commission examined the situation in the "Spolem" National Union of Consumer Cooperatives establishments in the light of the complaints received. The meeting was conducted by Politburo member Albin Siwak.

--The 2-day conference of first secretaries of ministerial scientific-research institutions ended. Courses of party action during 1986-1990 were discussed. Tadeusz Porebski, Politburo member and CC secretary, took part in the conference.

## Party Echelons and Organizations

10 December. The Provincial Committee (PC) in Lomza discussed the provisions of the Provincial Socioeconomic Plan for 1986-1990.

--The PC in Chelm investigated the course of the province's socioeconomic development in 1986-1990.

--The PC in Krosno evaluated the current situation in agriculture and the food economy in the province.

14 December. The PC in Lublin discussed the status of implementation of the CC 13th Plenum resolution in the province.

--The PC in Przemyśl defined the tasks of the provincial party organization in establishing a public-assistance program for schools.

15 December. In observance of the 37th anniversary of the Unifying Congress a meeting was held in the PC in Gdansk at which delegates to this Congress were present. The host at the meeting was Stanislaw Bejger, Politburo candidate member and PC first secretary.

16 December. The PC in Gdansk evaluated the state of the provincial party organization and defined internal tasks for the party. The meeting was conducted by Politburo candidate member and PC first secretary Stanislaw Bejger.

--The PC in Siedlce discussed the effectiveness of political-organizational activity in the provincial party organization. Włodzimierz Mokrzyszczak, Politburo candidate member and CC secretary took part in the meeting.

--The PC in Kielce assessed ideological activity in the light of the 13th CC Plenum resolution.

--The PZPR PC and ZSL Supreme Committee (SC) in Plock, at a joint meeting, discussed the status of raw materials and the farm-food industry to 1990.

17 December. Politburo member Zofia Grzyb took part in a meeting of a group of veterans of the worker's movement with the provincial authorities in Radom as part of the observances of the 37th anniversary of the Unifying Congress.

18 December. The PC in Jelenia Gora evaluated the course of the elections campaign to the Sejm and implementation of suggestions submitted at pre-election meetings.

--The PZPR PC and the ZSL SC in Sieradz at a joint meeting discussed the status of the implementation of the 11th PZPR CC and ZSL SC Plenum in the province. Kazimierz Olesiak, ZSL SC secretary, and Jan Zygartowski, deputy chairman of the CC Agricultural Commission, took part in the meeting.

--The PC in Rzeszow discussed socioeconomical development in the province during 1986-1990 and the party's tasks in implementing the plan for 1986.

--The PC in Walbrzych examined the state of the natural environment in the province.

--The PC in Wroclaw evaluated the execution of the instructions of the CC 16th Plenum and its own resolutions on consolidation of the position of the working class.

--Wlodzimierz Mokrzyaszczak, Politburo candidate member and CC secretary, participated in the science session and then in the ceremonial rally at the "1905 Revolution" Cast Iron Foundry in Staporkow in the Kielce Territories, in observance of the 90th anniversary of the 1905 revolution.

--Members of the executive boards of eight neighboring City Committees and City-Gmina Committees met at the Regional Center for Party Work in Otwock to discuss party activities in preparation for the 10th PZPR Congress. Albin Siwak, Politburo member, took part in the meeting.

19 December. The PC in Konin discussed the principal tasks in expanding ideological-upbringing activities in the provincial party organization.

#### Interparty Cooperation

9 December. On the occasion of her 90th birthday, Wojciech Jaruzelski, CC first secretary, sent Dolores Ibarruri a letter of congratulations. A PZPR delegation, headed by CC Secretary Henryk Bednarski, took part in the birthday celebrations, Bednarski presented Dolores Ibarruri with the Polish Order of Merit Sash, awarded to her by the Council of State.

10 December. In Luanda, capital of Angola, the Second MPLA Labor Party Congress ended its deliberations. A PZPR delegation, headed by CC secretary Waldemar Swirgon, attended the Congress.

12 December. The secretary of the CC Workers Party in Ethiopia, Ashagre Ylgletu, visiting in Poland, held talks with the director of the PZPR CC Foreign Affairs Department, Wlodzimierz Natorf, and was received by Politburo member and CC secretary Jozef Czyrek. At the conclusion of the visit, an agreement on cooperation between the two parties was signed.

--Guenter Sieber, director of the International Relations Department of the Socialist Unity Party of Germany [GDR] Central Committee, visiting in Poland, talked with Wlodzimierz Natorf, director of the PZPR CC Foreign Affairs Department. Guenter Sieber was received by Jozef Czyrek, Politburo member and CC secretary.

13 December. PZPR CC delegations, headed by Wladyslaw Honkisz, director of the CC Cadre Department, Leszek Jaszczewski, deputy director of the Organization Department, and Witold Jasinski, deputy director of the Agriculture Department, ended their visit in the GDR. The delegation headed by Honkisz was received by Horst Dohlus, Socialist Unity Party Politburo member and CC secretary. He also met with the delegation headed by Leszek Jaszczewski. The delegation headed by Witold Jasinski was received by Werner Felfe, SUP Politburo member and CC Secretary.

14 December. CC First Secretary Wojciech Jaruzelski sent a special message to the secretary general of the Communist Party of Argentina, Athos Fara, on the occasion of his 60th birthday. The Polish Council of State awarded the leader of the Argentinian communists the Order of Merit Sash.

--Stanislaw Opalko, Politburo member and PC secretary in Tarnow, received the representative of the CPSU CC political organ KOMMUNIST, Walerija Buszujewa, who was visiting in Poland at the invitation of NOWE DROGI.

19-20 December. A conference was held in Bucharest of the secretaries for international and ideological affairs of the central committees of the communist and workers parties of the socialist states.

The PZPR was represented at the conference by Jozef Czyrek, Politburo member and CC secretary, and Jan Glowczyk, Politburo candidate member and CC secretary.

9295

CSO: 2600/234

SCIENCE AND TECHNOLOGY

BULGARIA

#### LOCALLY MADE SM650 COMPUTER MODEL DESCRIBED

Sofia RADIO, TELEVIZIYA, ELEKTRONIKA in Bulgarian No 12, 1985 pp 23-25

[Article by S. Nachev, R. Petrov, and K. Krustev, Institute of Microelectronics, Sofia: "The SM650, a Bulgarian 8-Bit Single-Chip Microcomputer"]

[Text] In addition to the microprocessor families deriving from integrated circuits, single-chip microcomputers are also being developed in microprocessor engineering. These computers combine the functions of a self-contained independent system on a single semiconductor crystal and are indispensable in large-scale manufacture of low-cost products. Their range of application is constantly expanding, now including appliances in which until recently computer technology had not been utilized. Today these computers are used in washing machines, kitchen ranges, sewing machines, electronic and video games, automobiles, and many other applications.

Understanding of the importance of single-chip microcomputers to Bulgarian industry came early, and so the IME (Institute of Microelectronics) in Sofia has developed the SM650 MOS-integrated circuit, an analog of the MS6805R2. It represents an 8-bit microcomputer for applications as a controller in household and industrial appliances or as a general-purpose processor. It has been designed on the basis of microprocessor circuits of the SM600 family, and is embodied in a semiconductor crystal having an area of 13 square millimeters. It contains around 22,000 elements and is enclosed in 28-lead case. It can replace a small microprocessor system consisting of 6 integrated circuits of a high level of integration and 5 such circuits of a medium and low level of integration. It is mounted on a circuit board measuring approximately 250 square centimeters.

The SM650 microcomputer consists of the following basic functional units (Figure 1).

Processor: 8-bit, similar to the SM601.

RAM: 64 bytes, on the first page of the address field.

ROM: the consumer program run by the processor is written in 1100 bytes of mask-programmed ROM.

Input-output leads: 20 input-output lines divided into 2 inputs each with 8 lines and 1 with 4 lines. Each of them can be programmed as input or output.



Oscillator: the clock pulses required for operation of the microcomputer are generated by a built-in oscillator whose frequency can be externally stabilized with a quartz crystal. Operation with an external clock pulse generator is permissible. The maximum operating frequency is 4.4 megahertz.

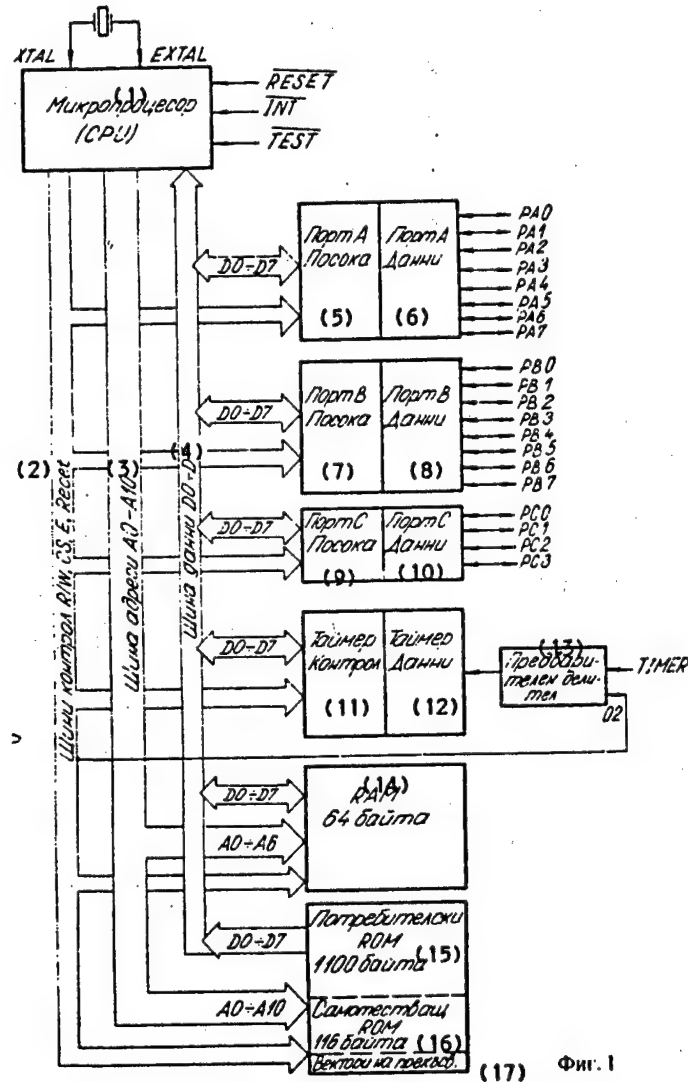


Figure 1

Key:

- |                                    |                             |
|------------------------------------|-----------------------------|
| 1. Microprocessor (CPU)            | 10. Port C Data             |
| 2. R/W, CS, E, Reset control buses | 11. Control timer           |
| 3. A0-A10 address bus              | 12. Data timer              |
| 4. D0-D7 data bus                  | 13. Preliminary divider     |
| 5. Port A Direction                | 14. 64 bytes RAM            |
| 6. Port A Data                     | 15. 1100 bytes user ROM     |
| 7. Port B Direction                | 16. 116 bytes self-test ROM |
| 8. Port B Data                     | 17. Interrupt vector        |
| 9. Port C Direction                |                             |

Timer: the built-in 8-bit timer with preliminary divider can be programmed to generate pulses, count events, generate interrupts, etc.

Resetting is accomplished by switching on the supply voltage over the RESET input and the internal low-level detection circuits.

Operation of the microcomputer can be interrupted in 3 ways: externally over the INT input, which is equipped with a zero-level detection circuit, by way of the built-in timer, and by means of a program interrupt command.

The SM650 has a functional self-test capability. The self-test is carried out by means of additional logical circuits and an additional 116 bytes of ROM in which the program is written. The self-test feature is an advantage both for circuit manufacturers and for appliance developers in designing input control.

### Programming

The command set of the SM650 consists of 59 instructions and is similar to that of the SM601 microprocessor. The following new instructions have been introduced: bit manipulation (setting of 0 or 1) and commands for conditional transitions depending on the state of a given bit.

The number of kinds of addressing has been increased to 10 from that of the SM601, through improved index addressing and the bit addressing capability.

The instruction system of the SM650 and the different kinds of addressing allow flexibility in programming, something which is especially important in the case of single-chip computers. Despite the fact that the SM650 has been designed chiefly for controller applications, it can be successfully used as a general-purpose processor. Programmers who are familiar with the SM601 microprocessor can learn to work with the SM650 within a short period of time.

### Development Hardware and Software

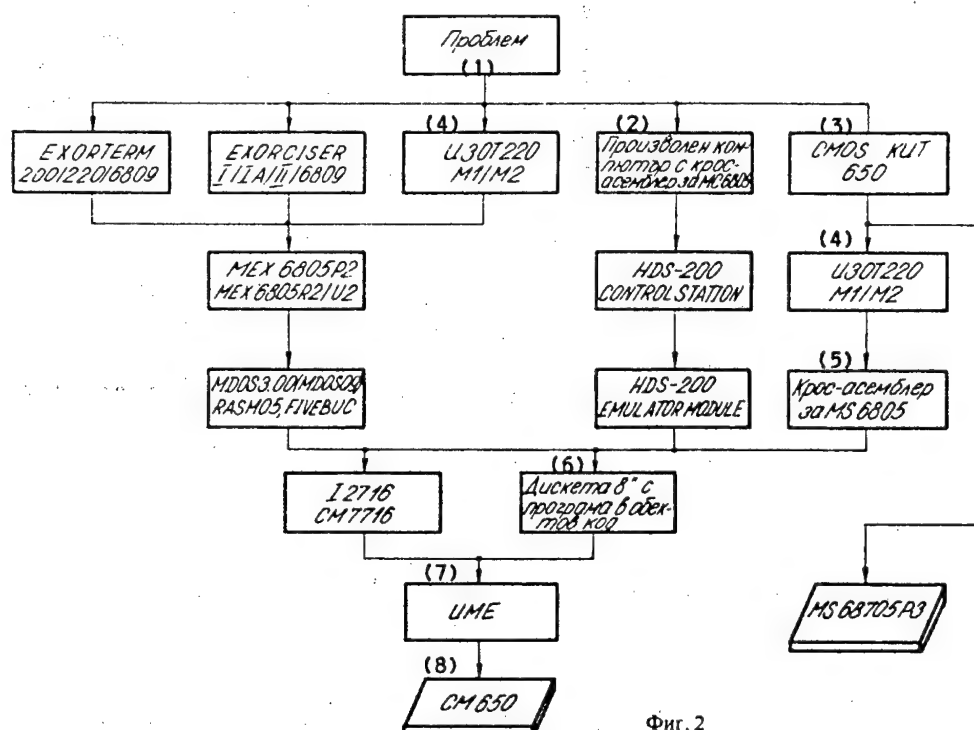
Figure 2 illustrates possible ways of solving specific user problems by use of available and proposed hardware and software.

#### MEX6805P2 + MEX6805R2/U2 Hardware and Software

A chip is supplied which is compatible with Exorbus (Exorcizer I, IA, II 6809 or Exorterm 200,220/6809), along with a diskette containing the corresponding operating system (MDOS 3.00 or MDOS 09) plus 2 programs, RASM 05 and FIVEBUG. RASM 05 is a macroassembler; work with it is similar to work with the macroassembler for the SM601. FIVEBUG is a control program by means of which the chip can be used to emulate operation of the microcomputer in the consumer appliance in real time, step-by-step or with interrupt points. It enables the content of the program memory and the internal microcomputer registers to be printed or modified from the system console, with the debugged program written back onto the diskette.

The chip can be used together with an IZOT 220; only a temporary chip from the microcomputer coupling to the MEX6805P2 is to be made for this purpose.

An adapter, the MEX6805R2/U2, is also provided with the chip to enable emulation of the operation of other computers of the MS6805 family.



Фиг. 2

Figure 2

# Key:

- |   |  |
|---|--|
| 1. Problem                                      | 5. Cross-assembler for MS6805              |
| 2. Any computer with cross-assembler for MS6805 | 6. 8" diskette with program in object code |
| 3. CMOS kit 650                                 | 7. IME                                     |
| 4. IZOT220 M1/M2                                | 8. SM650                                   |

## HDS 200 (Hardware Development Station)

This unit comes in 2 parts. The HDS 200 control station is a self-contained device that can be connected by means of a standard serial interface to any computer or terminal at which commands are given and the user program is loaded.

The HDS 200 emulator module varies with the type of computer. It is connected to the HDS 200 control station and substitutes for the user microcomputer in the device developed.

The capabilities of this system are similar to those of the MEX6805, but no requirement is set as regards the type of computer employed by the user. This does mean, however, that there must be a suitable cross-assembler translating the user programs into the object code of the microcomputer.

## Hardware Developed at IME

The CMOS KIT-650 is a circuit board with keyboard which can be connected by means of a standard serial interface to an IZOT 220 microcomputer used for writing, editing, and assembling the user program (IME has a macroassembler for the SM650). The object code obtained is loaded into the circuit board memory and the program is edited and debugged, being executed in real time or with interrupt points. The debugged program in the form of object code can be written back onto the diskette of the IZOT 220.

## Functional Capabilities Programmable on User Demand

The user of the SM650 can program some of the functional capabilities of the microcomputer as he wishes. This is accomplished by changing a technological mask while recording the user program in ROM. This results in a user version of the SM650 rigorously customized for every specific application.

The following are the functional capabilities programmable on user demand.

### Clock Pulse Generator Type

The user is enabled to select the type of timing components connected to the oscillator of the built-in clock pulse generator, an RC circuit or quartz crystal vibrator.

1. RC circuit. Only one external resistor is used in this case for frequency determination.
2. Quartz crystal vibrator. A crystal vibrator with a frequency 4 times higher than the internal clock frequency required is connected in this case. It is also possible to introduce an external clock pulse at TTL level.

### Output A Load Capacity

Every output A input-output line can be programmed to control directly either one standard TTL load only or one standard TTL load and one CMOS standard load simultaneously.

### Timer Clock Pulse

Either an external clock pulse supplied to the timer input or an F2 internal clock pulse resolved over the timer input is used to clock the counter of the timer built into the SM650.

### Coefficient of Division of Preliminary Divider for Timer

Programming is carried out in the range from  $2^0$  to  $2^7$ .

### Circuit for Reset (RESET) After Supply Voltage Shut-off

This circuit monitors the supply voltage of the SM650 and generates a RESET pulse when it drops below a certain level (4.2 volts is standard). It may be connected or disconnected, as desired by the user.

## Method of Assigning User-Selected Functions

User-selected functions are transmitted along with the file containing the recording of the program in ROM. For this purpose, one byte (UMOB) whose bits are used to code the functions to be programmed must be recorded in this file at address \$7EF. The contents of this byte are as follows.

1. Bit 7 (CLK): This bit assigns the type of clock pulse generator oscillator:

CLK = 0, quartz crystal vibrator,  
CLK = 1, RC circuit.

2. Bit 6, not used; must be log. 1.

3. Bit 5 (CLS): assigns the clock pulse source for the timer:

CLS = 0, F2 internal clock,  
CLS = 1, external clock pulse.

4. Bit 4 (LVR), determines whether or not the circuit for reset on drop in the line voltage is connected.

LVR = 0, not connected  
LVR = 1, connected.

5. Bit 3 (PAD), determines the load capacity of output A:

PAD = 0, TTL load  
PAD = 1, TTL and CMOS load.

6. Bits 2, 1, 0 (PDR), assign the coefficient of division of the preliminary timer frequency divider.

## User Information Media

The functions assigned, along with the user program of the SM650, must be recorded on one of the media adopted by IME. The recording is used to generate a technological mask for the pertinent user version of the single-chip microcomputer.

Two types of media are used at the Institute of Microelectronics.

### Flexible Magnetic Disk (Diskette)

The diskette used must be an 8-inch, single-sided single-density (SSSD) disk in standard IBM format (3740). It must contain the minimum MDOS system and user program in the form of an object file obtained after operation of the SM650 macroassembler (file with LX expansion). Along with the user program, this file must contain the UMOB byte at address \$7EF. The name of the ordering organization and the name of the file with the user program must be entered in permanent form on the diskette label.

## Electrically Programmable ROM

EPROM of the 2716 (CM7716) type with the program and UMOB written at the appropriate addresses is also accepted as a user information medium. The integrated circuit must be housed in conductive material and permanently marked as in the case of a diskette.

Only the valid ROM addresses in the SM650 (\$0080 to \$00FF, \$03C0 to \$0783, and \$078 to \$07FF) are read when the user mask is generated. The remaining information (with the exception of UMOB) is disregarded.

Note. The SM650 microcomputer is manufactured at the Institute of Microelectronics. Readers may apply for additional information to: Institute of Microelectronics, Microprocessor and Microcomputer IC Division, Sofia, PK 1184, Bul. Lenin, 7th km, Telephone 71-21-41 (Extension 537).

6115

CSO: 2200/65

SCIENCE AND TECHNOLOGY

HUNGARY

## NEW SYSTEM FOR SUPPORTING BASIC RESEARCH

Budapest NEPSZABADSAG in Hungarian 17 Jan 86 p 6

[Interview With Istvan Lang by Denes Kovacs: "New System For Supporting Basic Research. A Conversation With Istvan Lang, the First Secretary of the Academy", date and place not specified.]

[Text] As we have reported in our paper, the Science Policy Council of the government has made a policy decision, valid as of January 1, about setting up a National Scientific Research Fund (OTKA). The person responsible for the distribution of the OTKA is the First Secretary of the Academy. We talked with academician Istvan Lang, the First Secretary of the Academy, about this new method of financial support for basic research.

[Question] What has made it necessary to increase the support of basic research in Hungary?

[Answer] It is well known that applied research and technical development produce new processes which have practical uses, but this cannot be done without the acquisition of new scientific knowledge. The source of such knowledge is basic research, which provides needed results in physical and social science research. If this source dries up, technical development, the use of new technologies, and ultimately, production, is compromised.

Experience shows that in recent years great problems have appeared in basic research in Hungary. In industrially well-developed countries, 15-19 percent of the monies spent on research and development is devoted to basic research. In Hungary this proportion--due to the well-known economic difficulties--has sunk to a low of 10.7 percent in 1984.

In years past, our scientists have often and urgently warned at various Academy [of Science] forums about the dire consequences of this dangerous trend. The warnings have been heard by leading party and state organizations. The Political Commission of the MSZMP has reviewed the realization of the central ideas of science policy. It emphasized the requirement that in the future the proportion, intensity, and level of basic research must reflect the outstanding importance of this activity for our country's development over the

long term, and that the material requirements needed for it must be provided on a continuing basis. A realistic assessment of the situation produced the National Scientific Research Fund.

[Question] What is the size of the Fund? How can it influence the revival of basic research, an increase in its share?

[Answer] During the 7th Five-Year Plan the Fund has 3.8-4.0 billion forints. Half of this can be spent on research expenses, the other half on machine and instrument purchases and on the development of research infrastructure. According to projections, in the period 1986-1990, 152-164 billion forints will be spent on research and development in Hungary. If we start with the proposition that in the 7th Five-Year Plan we want to increase the proportion of basic research from the present 10.7 percent to 13 percent, we would need 20-21 billion forints. It follows that OTKA alone is not sufficient, but if it is used effectively it can provide an eminently important supplement to support funding from other financial sources.

[Question] If there are many tasks and money is in short supply, one must select carefully those scientific goals that can be supported from the resources of the Fund. What are the main goals?

[Answer] The decision of the Science Policy Council unambiguously describes the main directions of utilization. According to it, the most important goal is the creation or improvement of the conditions of original, contemporary and internationally excellent scientific research. For this reason priority must be accorded to the financial support of basic research proposals which are based on the prior scientific achievements of the applicant, or in the case of young research workers, on their ability and talent. Furthermore, proposals that are in consonance with the long-term, governmental program must be preferred.

[Question] Considering all this, who can get support from the Fund, and where?

[Answer] Support is awarded primarily by way of an open competition of proposals. We anticipate two kinds of proposals, thematic and infrastructure-developing ones. The announcement for the thematic proposal competition, that is, for the support of a well-delineated piece of basic research has appeared in the middle of December, and the deadline for application is February 28. Thematic proposals can be submitted by individuals and collectives. In the course of judging, proposals from research institutes, universities, public collections, and enterprises will receive preference, all other conditions being equal. The rules make it possible that in some cases research contracts can be given outside of competition. The announcement for proposals in the area of the improvement of the research infrastructure will be published, as far as can be foreseen, at the end of February or at the beginning of March. Such proposals can come only from research institutions.

[Question] The submissions will conceivably exceed the financial possibilities. How will the proposals be evaluated, ranked, and when will the decisions be announced?



[Answer] We anticipate 2000-3000 proposals the first time around. Processing these--given that they encompass a multitude of themes--is a difficult and responsible job. The evaluation and ranking will be done by the scientific bodies of the Academy, or ad hoc panels, and by Hungarian and foreign scientists. We plan to complete this effort in three months. This is necessary for the decisions to be rendered by the end of June, so that the contracts can be awarded shortly afterwards. Even if this schedule is adhered to, September is the earliest when researchers can get money from this source. For the making of major decisions relating to the use of the Fund, an OTKA committee has been created, among the members of which are state functionaries as well as scientists of great reputation.

[Question] Could the money have been distributed with a simpler procedure? Do the rules not restrict excessively the utilization of the Fund?

[Answer] Of course, the simplest procedure would have been the mechanical distribution of the available sums, without any competition or ranking. This method would produce less debate and fewer offended people, but one cannot be certain that the truly valuable, new ideas would receive support. I am certain that the evaluation of proposals by many experts will have a beneficial effect on our scientific life and, last but not least, will spur the development of basic research.

The financial rules contain few restrictions, such as the one that the proportion of outlays cannot exceed half of the total sum. There are no other ones in this area. The support can be used to cover the material costs of research, the publication in Hungary of research results, or for paying the costs of international cooperation connected with a particular research topic. I would like to remark here that the OTKA committee determines the proportion of personal and operational expenses and also how much of a premium will be paid to the participants on the basis of the evaluation following partial or total completion of the research project.

[Question] We are a small country and there are relatively few people working in each research area. How can subjectivity in evaluation be eliminated under these conditions?

[Answer] Even in large countries it is not possible to eliminate subjective judgement entirely. We have no illusions, but we strive to eliminate this harmful phenomenon. There is significant international experience with the competitive research proposal system, and over the past few years we have had some experience with it in Hungary. Judging at several levels, analyzing the prior scientific activity of the applicants, such as their publication record, and the inclusion of foreign experts is expected to help in rendering a realistic decision. Many of those who have applied but did not get support will, in all certainty, insist that they were treated unjustly and subjectively. We have to take this into account. Although the sums commanded by the Fund are rather limited, they are sufficient to satisfy the more easily assessed, useful requests. That is why I hope that when it is all over there will be more satisfied than unhappy persons. It is also certain that this fund

will represent progress in the financing of research in Hungary. Finally, we cannot forget the sideeffect of this procedure of competitive awards on urging everyone to greater excellence and higher productivity.

12845

CSO: 2500/189

SCIENCE AND TECHNOLOGY

POLAND

## AUTOMATION AND ROBOTIZATION OF TRANSPORT

Warsaw AUTOMATYKA KOLEJOWA in Polish No 12, Dec 85 pp 260-262

[Article by Ryszard Tolak, Ministry of Communications: "The Concept of Automation and Robotization in the Transport of Polish People's Republic. The Current State of Development and Conditions for Practical Introduction. The Possibilities and Forms of Multilayer Cooperation in the CEMA Framework"]

[Text] The automation of manufacturing processes as a component of technological and managerial progress is currently one of the major trends in world industrial development.

Industrial manipulators and robots are among the means of this automation.

Industrial robots are capable of replacing human labor on existing production installations that have attained a sufficient automation level.

They can be used in isolated components of the production process even when the general level of automation of the entire process at an enterprise may vary from segment to segment. In addition, the introduction of robots makes it possible to:

- alleviate the problems associated with the limitations of employment growth while at the same time eliminating the use of human labor on health-hazardous, tedious and unsafe jobs;

- achieve economic benefits from raising the productivity of plants serviced by industrial robots (increasing the production output); and

- attain steadily reliable quality characteristics of products (or operations performed).

It is clear from the above that the use of industrial robots is both urgent and important and is fully justified technologically and economically.

The capabilities created by robotization and the results attained up to now in the engineering industry have aroused interest in this issue in other sectors of the economy.

In particular, Poland's Ministry of Communications, appreciating the importance of these developments, has taken steps to analyze the organizational and sys-

temic conditions that would make it possible to employ robots and manipulators in transport.

Efficient operation of transportation services concerned with goods and passenger traffic is predicated today on modernization and upgrading--a process that acquires top priority.

According to statistical data, the public transportation system in Poland in 1983 carried a total of 586.6 million tons of goods and 3469.1 million passengers.

The distribution of loads among the branches of transportation, as determined by the geographical specifics or the development state of the economy and transport in various parts of the country, and the characteristics of the freight flows and categories are characterized by the following cumulative data:

Railroad traffic.....	approx. 69.5 percent
Motor vehicles traffic..	approx. 21.4 percent
Pipeline traffic.....	approx. 6.7 percent
Inland navigation.....	approx. 2.4 percent

Due to the scarcity of liquid fuel, the share of railroad transportation in the overall traffic shows a tendency for growth. For increasing the transportation performance, the organization and management of traffic should be upgraded by using mechanization and automation of transportation processes or components of these processes. This includes such steps as: automating the line and station signalization, mechanizing and automating dispatcher operations, controlling the traction power plant, automating the passenger services, etc.

In view of the technological capabilities and the innovation needs, work has also been started to prepare the development and introduction of means of automation and robotization at the industrial ministries and industrial enterprises.

At present, the automation level varies in the different sectors of the industry.

While automation is quite visible in machine tool areas (semi-automated, automated machines and NC machine tools), the level of automation based on industrial robots and manipulators, as well as the use of computers, is still low. Only isolated manipulator units are used by enterprises, mainly in the processing of plastic materials.

The enterprises evince little interest in automation, which is a consequence of the fact that different manufacturing processes and even whole industries are unequally susceptible to robotization.

The development of automation in a field which has certain specific features, such as the maintenance and repair of rolling stock, is affected by the type

of production processes. The characteristic features of these processes are the diversity of the technological condition of railroad cars brought in for repairs, small production batches and a large variety of the types of units being serviced.

Automation and robotization of repair shops are also limited by the poor technical condition of the available facilities, the level of management organization, shortage of skilled personnel and psychological barriers obstructing technological progress.

It should be stressed that the use of industrial robots for automation implies a proper level of organization of the production process, high quality of materials, as well as substantial investment, which under the current system of enterprise self-financing greatly limits the potential introduction of expensive technologies. In addition, the introduction of robots at workplaces and production lines requires the use of additional devices, so-called means of technical application. These include such devices as grippers, dosers, space orientation instruments, finishing elements, transportation conveyors, etc.

The diversity of this equipment is determined not only by the production processes used but also by the particular conditions at the individual workplaces.

The cost of the means of technical application may amount to a half and more of the total cost of robotization of a workplace.

It should be clear from the foregoing description of the situation that there is a large number of barriers limiting the introduction of industrial robots; on the other hand, the following factors should be taken into account:

- the rising labor shortages, especially on difficult jobs characterized, for instance, by tedious work or heavy weight lifting;
- the possibility of deriving large economic benefits by reducing the production costs, saving energy, better utilizing the means of production and improving the organization of production processes;
- the possibility of raising the performance quality of operations in terms of precision tolerances and their consistency;
- eliminating human labor on health- or life-hazardous jobs; and
- the need for introducing state-of-the-art automation technologies alongside NC machine tools.

In view of these factors, the Ministry of Communications has developed a program of automation and robotization of production for the period up to 1995. This program covers the following areas: the technological facilities of railroads, motor vehicles and inland navigation facilities. On the basis of domestic experiences with robotization and analysis of the structures of production processes, it was decided that the first to be automated are operations in welding, washing, painting and foundry workplaces, as well as production

of spare component parts, regeneration and diagnosis of rolling stock brought into car shops for repairs.

The priority area of automation will include workplaces and production lines involving health-hazardous and hard work where automation will provide substantial economic benefits. The introduction of automation at the ministry's industrial enterprises will start with conventional facilities, such as the use of feeders, transporters, sorters, automatic measurement and control units, manipulators, as well as a gradual introduction of industrial robots.

Some unconventional systems will also be introduced with the use, for example, of numerically controlled machine tools.

In the area of computerization, small computer systems will be introduced at a number of enterprises to be used for production, organization, management and control.

Machining processes such as turning, grinding, milling, drilling and cutting will be automated on the basis of semi-automata and large-scale use of NC machine tools, especially to manufacture replacement components. Multioperation machine tools will also be used in this group.

Industrial robots will be used as automation means in the following processes: cleaning and washing assemblies, components and structural elements, collectors, tanks and ship sections; painting automobile frames and railroad car bodies; thermal processing, welding and casting; and servicing workplace groups and loading/unloading operations.

During the first stage in the introduction of automation facilities, the following items of the program are to be implemented:

--rolling stock repairs:

- 1) robot servicing workplaces in the group working on rims for wheel assemblies;
- 2) robot for automatic painting of freight boxcars;
- 3) robot for painting the frames of freight boxcars;
- 4) an automatic line for shock absorber inspection;
- 5) an automatic line for regenerative soldering of rotation pin surfaces;

--automobile transport repairs:

- 1) automation of workplaces for painting motor car and bus cabins;
- 2) equipment for automatic plasma welding;

--inland navigation facilities:

- 1) production lines for welding of ship sections;
- 2) automated lines for cleaning and conservation of flat and shaped sheets.

The automation will partly be based on domestically produced robots and manipulators, some of which will be used by enterprises already using robots and manipulators.

The estimated cost of the automation and robotization program at ministry's enterprises in 1986-95 will amount approximately to 5 billion zlotys.

The financing will come primarily from the enterprise's own funds supported by bank credits.

Special systemic solutions in economic-financing area are envisaged to stimulate interest in automation among enterprises.

The following activities will be conducted at the same time:

- enforcement of standardization of quality selection according to the requirements of advanced automation; and
- applications of technology for automation and robotization processes.

Effective introduction and coherence of robotization calls for well-defined organizational principles. This involves the following actions:

- the scientific research units of the ministry will carry out projects involved in the selection of appropriate robots and manipulators produced in Poland, the design of application equipment and supervision of practical introduction of this equipment;
- specially assigned design and process engineering offices will develop design and process documentation for workplaces and means of technological application; and
- the enterprises using industrial manipulators and robots will develop application devices, supplementing and adapting this technology to their specific purposes.

This strategy pursues the objective of shortening the period of introduction, reducing the capital intensiveness of the process and raising the reliability of operation of robotized workplaces and application equipment.

The implementation of the program calls for training the appropriate cadre of engineers and technicians specializing in various fields of technology both at research and development facilities and design bureaus and at the enterprises themselves. This calls for large-scale specialized training programs with the participation of institutions of higher learning and technical organizations, especially in the fields of robot applications, taking into account the design of technological application means, programming and introduction of robots and industrial automation systems.

An inherent element of all activities securing the complete realization of our program is the further development of forms and principles of multi- and bilateral cooperation with CEMA nations in this area.

The multilateral cooperation should be oriented toward:

--exchange of experiences in automation and robotization in transportation industries.

We believe that at the initial stage of this cooperation it is desirable to compile a catalog of concepts existing in the CEMA nations in the area of automation and robotization of workplaces at maintenance and repair facilities of the various branches of the transportation industry. Such a catalog will make it possible to:

--provide rapid access to information on the state of technology existing and available for use in an area of interest for a given nation, which would greatly reduce the time and cost of eventual practical introduction;

--avoid duplicating application work by organizations in the industrial CEMA nations as related to identical workplaces. The catalog should contain data sufficient for understanding the applicability of a given technological concept to a particular transportation or production process in the nations concerned. It also seems desirable to compile a catalog of robots and manipulators manufactured in CEMA nations, which could be used in automation of transportation industry. Another form of cooperation could be a regular exchange of technological data concerning the application and introduction efforts and also possibly technical documentation in automation and robotization areas;

--develop methodological instructions for evaluating the cost-effectiveness of automation and the design and building of workplaces serviced by robots.

9922

CSO:2602/16



SCIENCE AND TECHNOLOGY

POLAND

ACADEMY SPECIALIST DISCUSSES POLYMER APPLICATION

Warsaw ZOLNIERZ WOLNOSCI in Polish 27 Dec 85 p 5

[Interview with Professor Zbigniew Jedlinski, Director of the Polymer Institute, Polish Academy of Sciences, located in Zabrze, published under the "Laureates of the Ministry of National Defense Prizes" rubric, by Roman Przeciszewski: "To See the Twenty-First Century"; date and place not specified; the first paragraph is the text accompanying the interviewee's picture in a boxed inset]

[Text] From "Who's Who in Poland," page 343: Professor Zbigniew Jedlinski, chemist, full member of the PAN, lecturer (visiting professor) at universities and institutes of the USSR, United States, Sweden and the FRG, chairman of the International Group of Experts in the field of ionic polymers, member of various organizations, including the National Committee for UNESCO Affairs, the International Union of Pure and Applied Chemistry and the US and Japanese Chemistry Societies and author of 55 Polish and 20 foreign patents. Preferred leisure activities: theater, listening to symphony music, reading, sports ...

[Question] Few people know that even Leonid Teliga owes his success to Jedlinski. How did this happen, Professor?

[Answer] Very simply, I also am a yachtsman, and what yachtsman wouldn't notice this? The yacht body in the water is not only susceptible to corrosion but also to the growth of microflora and microfauna on its surface. This effect modifies the aerodynamic characteristics of the floating object, reducing the sailing efficiency and increasing the power demand. I began to think of ways of reducing this.

[Question] So you went to laboratory tests, calculations, experiments ...

[Answer] Nothing of the sort. What helped was a combination of biological and chemical problems. In 1964 I was able, together with my colleagues, to propose to the industry the manufacture of anticorrosive coatings for submerged parts of ships. The concept was easy to sell. Teliga also made use of it. In his memoirs, he describes the moment when his yacht was pulled out of the water at an American shipyard. The Americans were visibly astonished: how could a boat be so perfectly clean? Teliga explained: that is thanks to Polish ship paint. Frankly, I did feel proud.

[Question] So, as they say, a Pole will find a way.

[Answer] This proverb has a pejorative connotation, but, indeed, a Pole will find a way. Doesn't history confirm this? I am thinking, for example, of the group of Kazimierz Smolenski, who worked before the war at Warsaw Polytechnic. They were the first to develop a modern technology for production of synthetic rubber, much earlier than the Germans did. This rubber, KER, was to be introduced into commercial production in the Central Industrial Region.

[Question] But...

[Answer] Exactly, but. The war broke out. Smolenski was executed by firing squad. His collaborator, an engineer named Szukiewicz, however, survived and his fate brought him to the United States. What happened next? This method of rubber production was resurrected in the United States. So Poland has contributed greatly to the technological revolution in the American automotive and polymer industries.

[Question] Many will say, however, that in the area of polymers we are still far behind, while other countries...

[Answer] The interest in polymers began to appear in the world in the 1930's and developed broadly in the next decade. In Poland, however, its time came only after the war. This doesn't mean at all that we don't have an important place in this area in world science.

[Question] In the world science?

[Answer] I didn't misspeak myself, and this is not an exaggeration. Our institute is cooperating with a large number of important scientific centers and institutions, both in the East and the West, and we are not looked down upon. Just the opposite: many foreign centers are eager to arrange for joint projects with us in investigating the structure of polymers, its influence on physical properties, the methods of polymer synthesis and their applications, in particular in medicine and industry.

[Question] If it is so good, why is it so bad? Where do we see those polymers in our economy and industry?

[Answer] This is the other side of the coin. We have good science in the area of structural plastic materials, but, unfortunately, the development of the industry is falling behind demand. I am a member of the Presidium of the Ninth Section, which is preparing materials for the Congress of Polish Science, and I have suggested there that the restructuring of the industry should take this problem into account. We cannot fall behind in this area! In the world, there is a steady 10 percent increase in the production of structural materials every year, and there are no indications that this growth rate will abate in the coming years. Compare this with what is happening here.

[Question] But we have large metal works, steel furnaces ...

[Answer] This is not the only way to go. Polymers are materials of the 21st century. Those who cannot or do not want to see it are not looking at things realistically. These materials are not just substitutes for steel and corrosion-resistant metals but also are invaluable thermal insulation and sound-absorbing materials. In short, polymers are light anticorrosive and durable materials. For example, these materials are used in the F-14 or Mirage jets, and what about space technology? Were it not for polymers, which have the property for absorbing thermal and mechanical energy and are used in spacecraft as thermal shields, no spaceship would be able to pass through the dense atmospheric layers. It would either burn up or be damaged badly enough not to be able to undertake a second flight. There are many other examples.

[Question] Take, for instance, motor cars. Bayer has already produced the first plastic car.

[Answer] This is nothing new for this industry. In the United States, the share of plastic materials in a modern motor car is currently 40 percent, and in the coming five years this figure is expected to increase by another 20 percent. The new applications concern not only accessory components but also new motor car designs which ensure better passenger safety in case of accidents. I have seen that, and it is no fantasy! The front and rear parts of this car are made of plastics. When a car is hit on both sides simultaneously, the result is an "accordion" at the front and the back, but ... the passenger cabin remains intact. No wonder. Do you know, for example, what bulletproof vests are now made of? That's right, of polymers! That's simply because, with an appropriate design of polymers, such a vest stops the bullet better than a steel vest.

[Question] Polymer design? This sounds cryptic.

[Answer] This is elementary chemistry and physics. Actually, at our institute we studied how the configuration of atoms affects the physical properties of the polymer. In other words, if we want to change and modify these properties, we must change the internal structure of the polymer. Then we obtain an entirely new material with properties quite different from those of the initial substance.

[Question] Do you always achieve the desired properties?

[Answer] That is correct, although this involves hundreds of calculations, recalculations, evaluations and tests. It is like the future cut to size. "To size" means here according to the properties we want to obtain.

[Question] Could you give us some domestic examples?

[Answer] There are practically no areas where polymers could not be used. In medicine, as artificial eye crystal, contact lens, for prostheses and as

synthetic skin used for transplants and in burn therapy. In industry, they are used as durable anitcorrosive materials capable of replacing stainless steel. For example, the Metalchem Factory in Opole, which manufactures metal equipment and chemical containers (for example, of highly expensive chrome steel), asked us if we could reduce their costs by replacing the steel with an alternative material. We are now studying the possibility of coating ordinary steel with a polymer film. The results are encouraging ...

[Question] I somehow hoped that the first example will be the technology of plastic materials for shipbuilding, for which you received the prize of the Ministry of National Defense, category 1. But you didn't mention it. Is it a taboo subject? Military secret? Is this a matter of national security?

[Answer] I never take it as a premise that something is for defense and something is for the economy. My hobby is military history, but not military strategy; rather, the development of technological ideas. And what do we learn from this history? That the driving force of technological progress is the demand for technology, both in the economy and in defense. There is a reciprocal relationship here.

[Question] But people rarely say that or write about it ...

[Answer] I think that this is nothing new. This is simply history. The matters of economy and defense are closely correlated. We should not conceal this fact. How, for example, was margarine invented? During the Napoleonic Wars, the chief of logistics announced a contest for producing a food fat that wouldn't spoil. This is how a butter substitute was invented. And what about rubber? Remember, it was during the First World War, when the Allied powers set up a blockade and the Germans were cut off from the import of raw materials. There was a need for a certain technology, and soon the world learned that synthetic rubber had been invented. And take explosions and their use in everyday life in civil engineering and in building of mine shafts, tunnels and in landscaping. This is no secret.

[Question] So let us come back to the technology that we have already mentioned. What benefits will it provide?

[Answer] For economy, for shipbuilding, it means billions in savings within one year. These billions also mean a savings of steel. The technology is based on domestic materials; the production is relatively simple; and the durability of the structures is high. The polymer proved to be a perfect material for the entire shipbuilding industry. Actually, this is the direction--the replacement of steel with lighter, safer materials--in which the entire world is now moving.

[Question] Thank you for the interview.